



Impact Area Groundwater Study Program

Final

L Range Annual Interim Environmental Monitoring Report

May 2011 – April 2012

**Camp Edwards
Massachusetts Military Reservation
Cape Cod, Massachusetts**

August 2012

Prepared for:

Army National Guard
Impact Area Groundwater Study Program
Camp Edwards, Massachusetts

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DISCLAIMER

This document has been prepared pursuant to government administrative orders (U.S. EPA Region I SDWA Docket No. I-97-1019 and 1-2000-0014) and is subject to approval by the U.S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not necessarily those of the Environmental Protection Agency.

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1.0 INTRODUCTION

The L Range site is located on Camp Edwards at the Massachusetts Military Reservation (MMR), southeast of the Impact Area, between the J-1 and J-3 Ranges (Figure 1-1). It was used by the military for various training purposes between the 1940s and 1997 while undergoing several name and use changes during that time period. Beginning in the 1970s and ending in 1997, the site was used primarily as a grenade launcher familiarization range under the current L Range designation.

There are two groundwater contaminants of concern at L Range: hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and perchlorate. These compounds are presently detached from the upgradient source areas. Definitive source areas have not been identified at this range, but detectable concentrations of the contaminants of concern have been grouped into a mappable RDX plume. Historically, RDX at this site has been detected at concentrations exceeding the risk-based threshold of 0.6 micrograms per liter ($\mu\text{g/L}$). Conversely, perchlorate has not been detected (except for in a single, isolated case in 2003) at concentrations exceeding the 2 $\mu\text{g/L}$ Massachusetts Maximum Contaminant Level (MMCL). Further details on the nature and extent of the contamination are provided in the *Final L Range Groundwater Characterization Report* (ECC, 2005) and the *Final L Range Remedial Investigation and Feasibility Study* (ECC, 2010). A Decision Document for the L Range Operable Unit was issued by the U.S. Environmental Protection Agency (USEPA, 2010) in September 2010. The selected response action (Alternative 2) was Monitored Natural Attenuation and Land Use controls.

Environmental monitoring results for L Range have been documented in several reports, the most recent of which covers groundwater sampling in October 2010 through April 2011 (USACE, 2011). Sampling results for the current reporting period (May 2011 through April 2012) are presented herein. Results from future groundwater monitoring events will continue to be reported in subsequent Interim Environmental Monitoring Reports until a Final Environmental Monitoring Plan is approved by the EPA. The Environmental Monitoring Plan will be designed to demonstrate compliance with established cleanup levels and will include sampling locations and frequencies, appropriate statistical modeling or other data interpretation techniques, and a proposal to demonstrate that groundwater quality is sustained in the future.

2.0 SAMPLING PROGRAM

L Range groundwater sampling occurring between May 2011 and April 2012 was performed in accordance with the *Final L Range Interim Groundwater Monitoring Plan* (ECC, 2006) as amended in the *Final L Range Interim Groundwater Monitoring Submittal* (ECC, 2009a) and *Final L Range Interim 2009 Environmental Monitoring Report* (ECC, 2009b). The Project Note dated 24 October 2011 and presented as an appendix to the Final L Range Interim Environmental Monitoring Report October 2010 – April 2011 (USACE 2011) documents changes to the L Range chemical monitoring network. The Project Note increased the sample frequency at well MW-242M1 from annual to semi-annual sampling for explosives and perchlorate analysis. However, the semi-annual round (August 2011) was collected by the time the Project Note was executed. As such, semi-annual sampling of this well will take place during the next reporting period.

The combined groundwater monitoring network for perchlorate and RDX is comprised of 32 wells (Figure 2-1). Samples collected from these wells were analyzed for perchlorate using EPA method SW6850 and for explosives compounds using EPA Method SW8330 at the locations and frequencies specified in Table 2-1. Sample collection and field monitoring equipment calibration and maintenance were conducted in accordance with approved procedures specified in the *Draft Generic Quality Assurance Project Plan* (ECC, 2007).

3.0 MONITORING RESULTS

Groundwater samples were collected from five monitoring well locations in August 2011 and from 32 well locations in February and March 2012. Laboratory results for the current reporting period for perchlorate and explosives are tabulated and presented in Table 3-1 and compared to past monitoring results to evaluate changes in the distribution of RDX and perchlorate at the site. Inception to date results for perchlorate, RDX, HMX and select explosives (TNT, 2,4-DNT, 2,6-DNT, 2A-DNT, and 4A-DNT) are presented in Appendix A. Notable observations are discussed in the following sections.

3.1 RDX

During this reporting period, detectable concentrations of RDX were observed in two monitoring wells: 90MW0031 and MW-242M1. RDX was non-detect in 26 of 28 samples with the sample collected from well 90MW0031 containing RDX at 0.27 µg/L, and the sample collected from MW-242M1 containing 9.75 µg/L, the maximum RDX concentration at the L Range site measured to date. Concentrations of RDX were detected below the risk based concentration of 0.6 µg/L in MW-153M1 and MW-530S during the prior reporting period. The RDX plume depicted in Figure 3-1 was drawn using current reporting period results as well as model projections from previously contaminated well screens at MW-153M1 and MW-242M1. For the purposes of discussing the distribution of RDX in groundwater, the data will be presented with respect to samples collected from wells within the Source Area, Downgradient of the Source Area, and the Leading Edge of the plume.

Source Area Wells

During this reporting period five wells located within the source area, MW-236S, MW-238M2, MW-291M2, MW-529M1 and MW-530S were all non-detect. RDX which was previously detected in MW-530S (0.25 µg/L) in October 2010 has been non-detect in the subsequent two sampling rounds (Figure 3-1 and Appendix A).

Downgradient of Source Area

For the first time since March 2001, the concentration of RDX measured in MW-153M1 was non-detect. RDX measured 9.2 µg/L in March 2001 and concentrations were continuously above 2 µg/L through March 2008. Concentrations of RDX dropped below the risk based concentration of 0.6 µg/L in March 2011 and, as noted above, was non-detect in March 2012 (Figure 3-1, Table 3-1, Appendix A). Based on these data, it appears that the RDX plume has migrated past this well.

Concentrations in well MW-242M1 were non-detect from May 2004 until March 2008 when RDX was detected at 0.62 µg/L. A single detection of RDX (0.42J µg/L) was present in a sample collected in June 2003, with non-detects occurring previously in November 2002 and March 2003, respectively. In March 2010, RDX was detected at the Health Advisory of 2 µg/L and the concentrations have steadily increased to the current maximum of 9.75 µg/L measured in February 2012 (Figure 3-1).

Several wells bound the plume to the west (MW-288M1, MW-325M1 and 90MW0031). MW-288M1 has been non-detect for RDX since June 2006. With the exception of a low level detection (0.28 µg/L) in February 2010, MW-325M1 has been non-detect for RDX since May 2007. Well 90MW0031 was non-detect from April 1999 through January 2006. The well was added back into the monitoring network and sampled in March 2009. Since then, RDX detections have ranged from 0.25 µg/L to 0.4 µg/L. The concentration in March 2012 was 0.27 µg/L.

Monitoring wells MW-45M1 and 90WT0013 bound the plume to the east. MW-45M1 has been non-detect since sampling of the well began in May 1999. Well 90WT0013 has been non-detect since January 2003. RDX was detected in this well in January 1998 at 5.2J µg/L and twice in 2002 (0.83J µg/L - January and 1.1J µg/L/1.2J µg/L (duplicate) – October). RDX has not been detected in this well since 2002.

Leading Edge Wells

Leading edge monitoring well 90MW0007 has been non-detect for RDX since sampling commenced in September 2004. Additionally, since May 2003, RDX has been non-detect in well 90MW0034 (Figure 3-1). Wells located further downgradient (90MW0003 and MW-246M1) have been non-detect since sample inception beginning January 1999 and January 2003, respectively (Appendix A).

3.2 Perchlorate

During this reporting period, 16 of 29 samples analyzed for perchlorate in August 2011 (semi-annual round) and February/March 2012 (annual round) contained perchlorate above the method detection limit (Table 3-1 and Figure 3-2). However, of the 16 detections, only one sample contained perchlorate above the reporting limit of 0.2 µg/L. The maximum detected concentration was present in the sample collected from MW-153M2 (March 2012) with duplicate sample results of 0.31J µg/L and 0.72J µg/L. These results are well below the 2 µg/L MMCL.

Only one well, 90WT0013 has had measurable perchlorate above the MMCL of 2 µg/L. The sample collected in this well in September 2003 detected perchlorate at 2.8J µg/L. This is the maximum perchlorate concentration measured at the L Range. Other than this single detection, perchlorate has not been detected in the 13 samples subsequently collected from this well (Figure 3-2 and Appendix A). A concentration of 1.9 µg/L was, however, detected in MW-153M2 in April 2007. Perchlorate was not detected above 2 µg/L in downgradient wells MW-242, 90MW0019 or 90MW0007 over their sampling histories.

Since April 2007, concentrations of perchlorate have been trending downward at MW-153M2, decreasing from 1.9 µg/L to 0.31 µg/L (March 2012). Unlike RDX, there has been no increase in downgradient well MW-242M3 well cluster. This well was non-detect between May 2004 and March 2008 when the method detection limit was 0.35 µg/L (Method 314.0) with a reporting limit of 1 µg/L. Detectable concentrations of perchlorate ranging between 0.15 µg/L (February 2012) and 0.43 µg/L (February 2010) have been detected in MW-242M3 since switching to perchlorate method 6850 (reporting limit of 0.20 µg/L) (Figure 3-2).

3.3 Other Analytes

During the reporting period no other explosive compound was detected. Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) was detected in the prior reporting period in source area well MW-529M1 at concentrations ranging from 0.22 µg/L to 0.29 µg/L (Appendix A). However, HMX was non-detect in this well for the August 2011 and February 2012 sampling rounds. The MCP GW-1 standard for HMX is 200 µg/L.

4.0 RECOMMENDATIONS

This section identifies the proposed optimization to the explosives and perchlorate monitoring well network (Sections 4.1 & 4.2). Additionally, Section 4.3 identifies that a Project Note will be developed to better delineate the leading edge of the RDX plume downgradient of MW-242M1.

4.1 Explosives Monitoring Network Optimization

As indicated in Section 3.1, RDX was non-detect in 26 of 28 samples collected in August 2011 (semi-annual round) and February/March 2012 (annual round) with one sample 90MW0031 located on the southwestern edge of the plume (Figure 3-1) detecting RDX at 0.27 µg/L. The other RDX detection, 9.75 µg/L was detected in MW-242M1 (24 February 2012) and is the maximum concentration in groundwater measured to date.

Seventeen monitoring wells are recommended for retention (identified below and presented in Table 4-1 and Figure 4-1).

Source/Near Source Wells

- MW-236S, MW-238M2, MW-291M2, MW-529M1 and MW-530S.

Downgradient of Source Area

- 90WT0019, MW-325M1, 90WT0013, MW-153M1/M2, MW-242M1, MW-288M1

Leading Edge Wells

- 90MW0031, 90MW0007, 90MW0034, 90MW0005, MW-246M1

Due to the lack of RDX detections above the risk based concentration of 0.6 µg/L in many wells sampled it is recommended that six wells be eliminated from the sampling program. The six monitoring wells recommended for removal from the explosives sampling program, and the rationale for discontinuing sampling are as follows:

- 90MW0013 – RDX has been non-detect in all 10 samples collected since April 1999.
- 90MW0021 - RDX has been non-detect in all 15 samples collected since April 1999.
- MW-239M1 - RDX has been non-detect in all 10 samples collected since November 2002.
- MW-239M2 - RDX has been non-detect in all 12 samples collected since November 2002.
- MW-45M1 - RDX has been non-detect in all 13 samples collected since May 1999.

- 90MW0003 - RDX has been non-detect in all 27 samples collected since June 1998 (excluding one rejected sample result in October 2004).

4.2 Perchlorate Monitoring Network Optimization

As indicated in Section 3.2, 16 of 29 samples analyzed for perchlorate in August 2011 (semi-annual round) and February/March 2012 (annual round) contained perchlorate above the method detection limit. However, of the 16 detections, only one sample contained perchlorate above the reporting limit of 0.2 µg/L and only one sample ever collected contained perchlorate above 2 µg/L (90WT0013).

It is recommended that perchlorate sampling be scaled back and only be tested for in source/near source area wells and select downgradient wells. The 14 wells recommended for continued perchlorate sampling are identified below and identified in Table 4-1 and Figure 4-1.

Source/Near Source Wells

- MW-238M2, MW-291M2, MW-529M1 and MW-530S.

Downgradient of Source Area

- 90WT0019, 90WT0013, MW-140M1, MW-153M2, MW-241M1, 242M1/M2/M3, MW-288M1

Leading Edge Wells

- 90MW0019

Ten monitoring wells are recommended for cessation of perchlorate sampling. The rationales for discontinuing sampling are as follows:

- 90MW0003 – Perchlorate has been non-detect in all 9 annual samples collected since December 2004.
- 90MW0005 – Perchlorate has been non-detect in all 9 annual samples collected since December 2004.
- 90MW0007 – Perchlorate has been non-detect in all 7 annual samples collected since June 2006 and in a prior sample collected in September 2004.
- 90MW0013 – Perchlorate has been non-detect in all 6 annual samples collected from June 2006 through February 2011 with a low level detection of 0.037 µg/L in February 2012.

- 90MW0038 – Perchlorate has been non-detect in all 7 samples collected between January 2006 and February 2011 with a low level detection of 0.044J $\mu\text{g/L}$ in March 2012.
- 90MW0071 – Perchlorate has been non-detect in all 19 samples collected since January 2001.
- MW-236S – With the exception of a low-level detection of 0.06J $\mu\text{g/L}$ in September 2009, this well has had 16 non-detect measurements since October 2002.
- MW-239M3 – Perchlorate was non-detect in 5 samples collected between January 2006 and March 2009. Two low level detections 0.094J $\mu\text{g/L}$ and 0.055J $\mu\text{g/L}$ were detected in February 2010 and February 2012, respectively.
- MW-246M1 - Perchlorate was non-detect in 13 samples collected between January 2003 and March 2009. Two low level detections 0.041J $\mu\text{g/L}$ and 0.048J $\mu\text{g/L}$ were detected in February 2010 and February 2012, respectively.
- MW-246M2 - Perchlorate was non-detect in 8 samples collected between January 2003 and March 2008. Concentrations measured since February 2010 have not exceeded 0.073J $\mu\text{g/L}$.

4.3 Proposed RDX Leading Edge Investigation

As described in Section 3.1, RDX concentrations in well MW-242M1 have recently been on the increase. Between March 2008 and February 2012 RDX has increased from 0.62 $\mu\text{g/L}$ to 9.75 $\mu\text{g/L}$. Prior to March 2008 concentrations were non-detect between May 2004 through May 2007 with one low-level detect (0.42J $\mu\text{g/L}$) in June 2003.

Forward particle tracks from MW-242M1 and from MW-153M1 suggest that contamination detected in these wells may eventually migrate to the west of 90MW0007 and to the east of this well between 90MW0007 and 90MW0034. As such, a Project Note will be developed to assist in delineating the RDX plume above 0.6 $\mu\text{g/L}$ downgradient of MW-242M1.

5.0 REFERENCES

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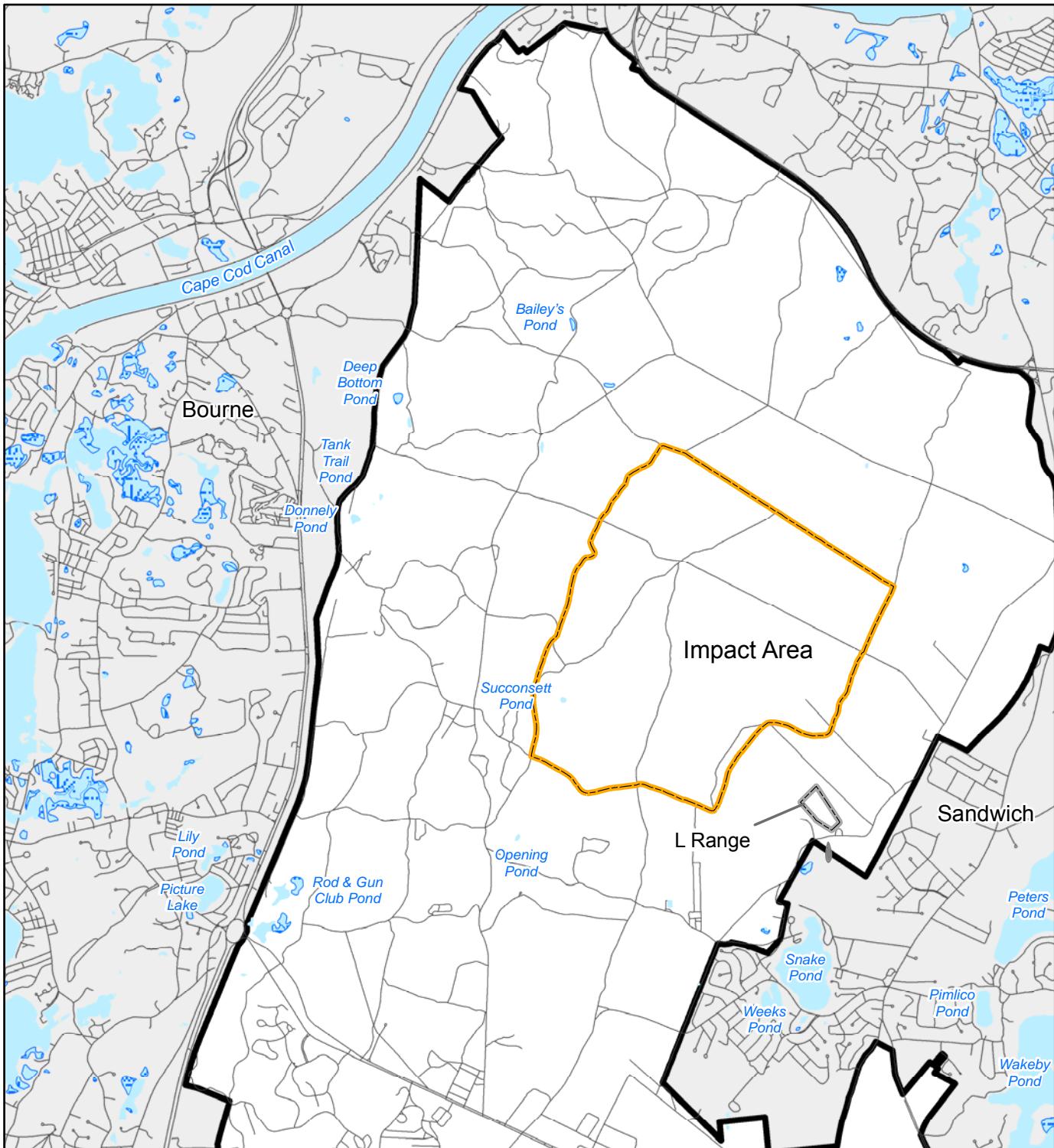
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FIGURES

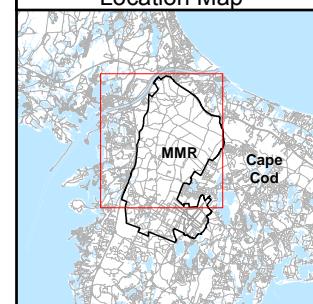


Legend

- MMR Boundary:** Thick black line
- Impact Area Boundary:** Dashed yellow line

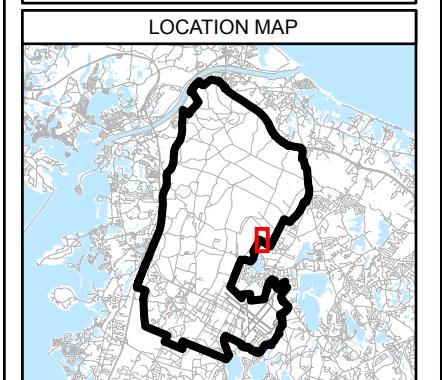
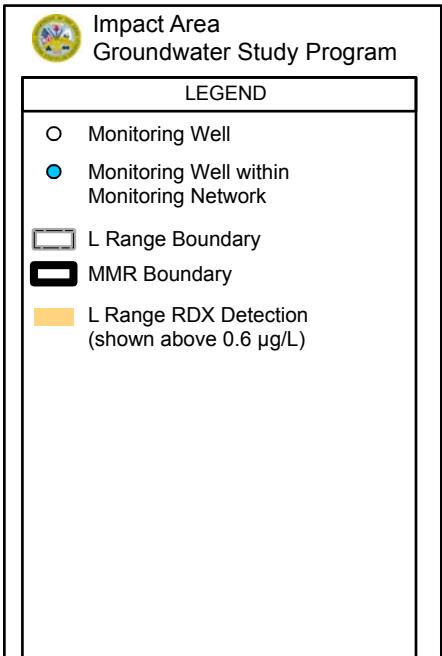
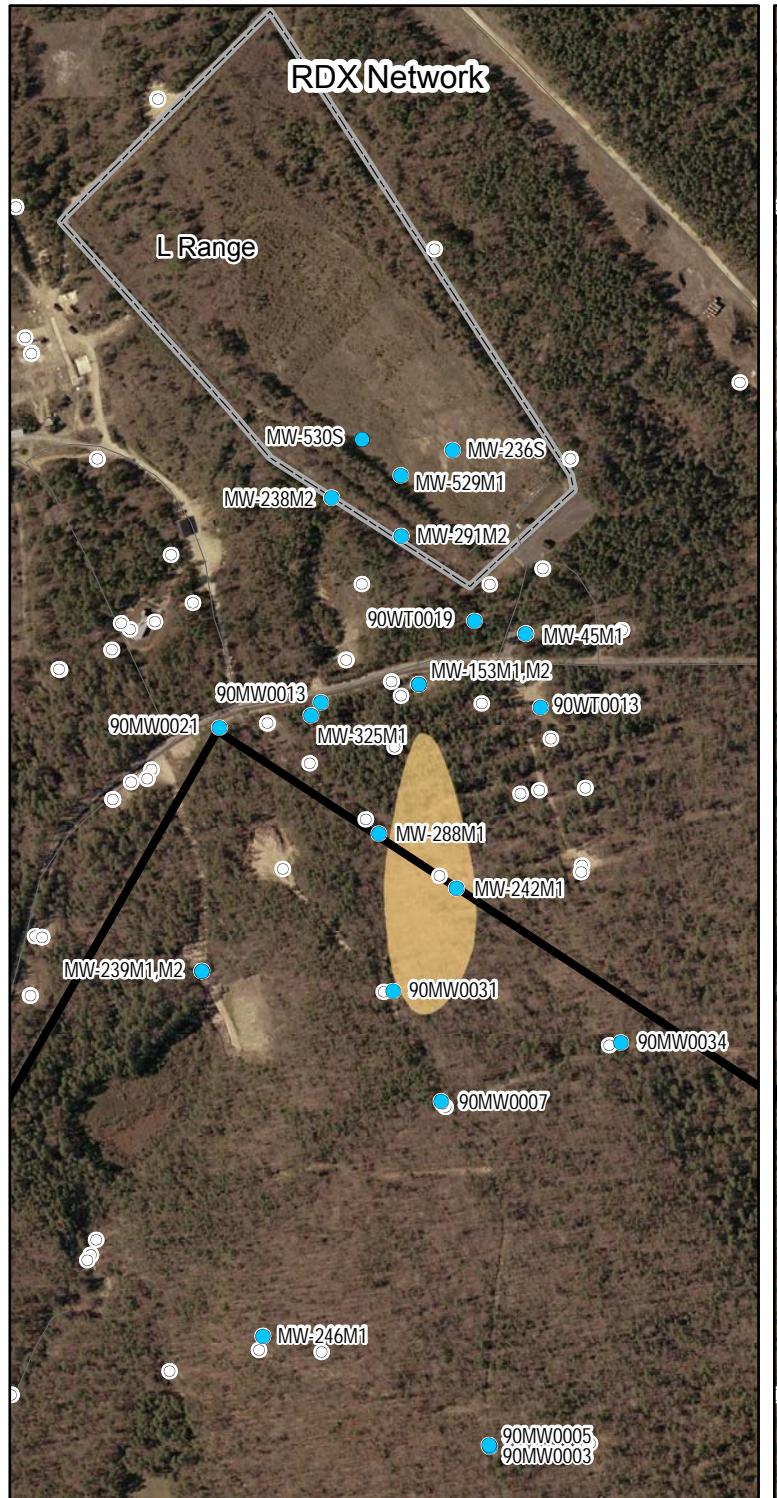
- L Range RDX Detections (above 0.6 µg/L):** Shaded gray area

Location Map



0 2,500 5,000
Feet

Location of L Range



NOTES & SOURCES

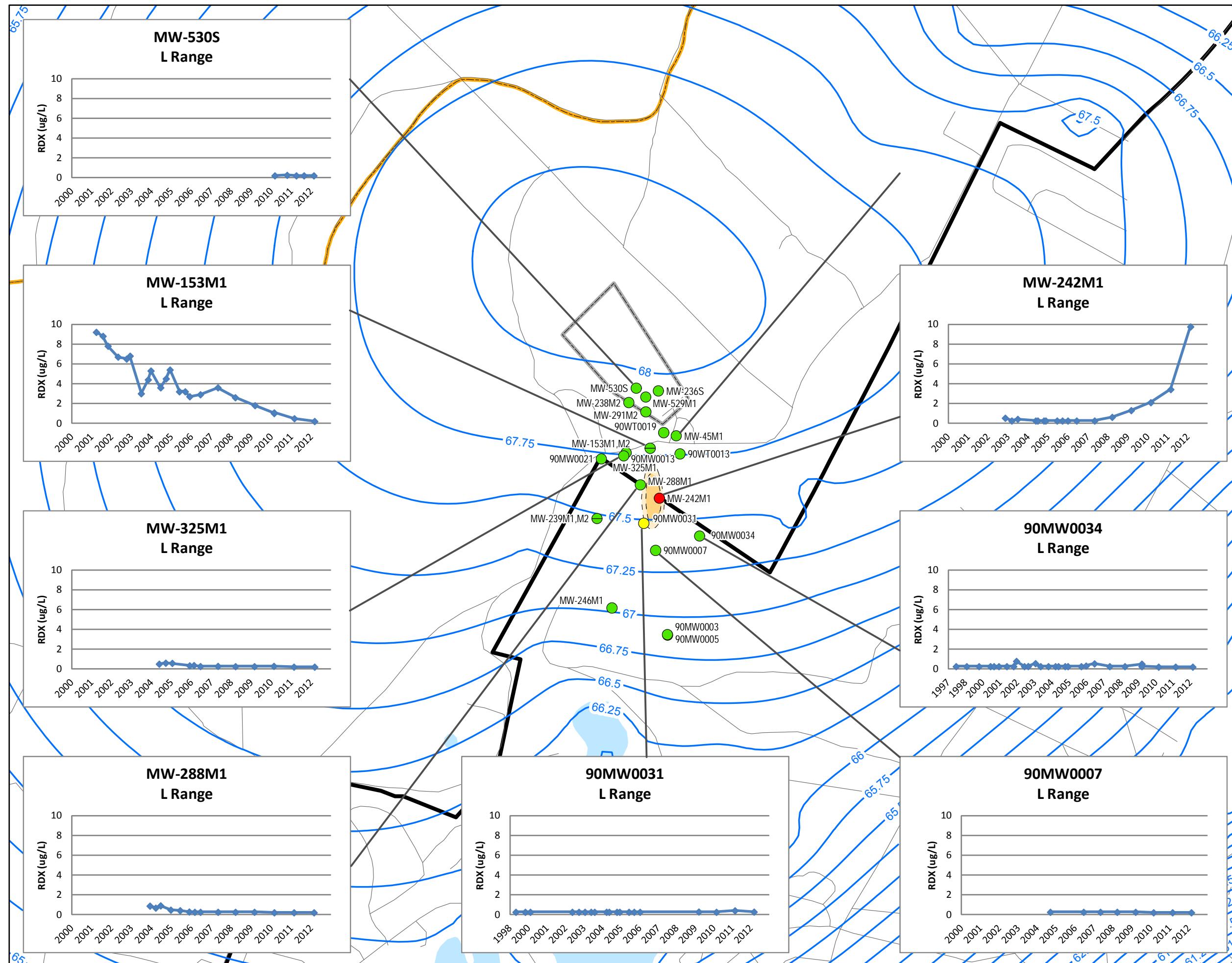
Map Coordinate System: NAD83 UTM Zone 19N Meters
Basemap data from US Geological Survey 7 1/2 minute Topographic Maps: Source: MassGIS

TITLE
L Range Chemical Monitoring Network

0 500
Feet

US Army Corps of Engineers
 New England District
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 May 31, 2012 DWN: MTW CHKD: MRK

FIGURE
2-1





Impact Area Groundwater Study Program

LEGEND

2011-2012 RDX Detections in Groundwater

- No Detection
- Detection at or below 0.6 µg/L
- Detection above 0.6 µg/L
- Indicates different detections in different well screens

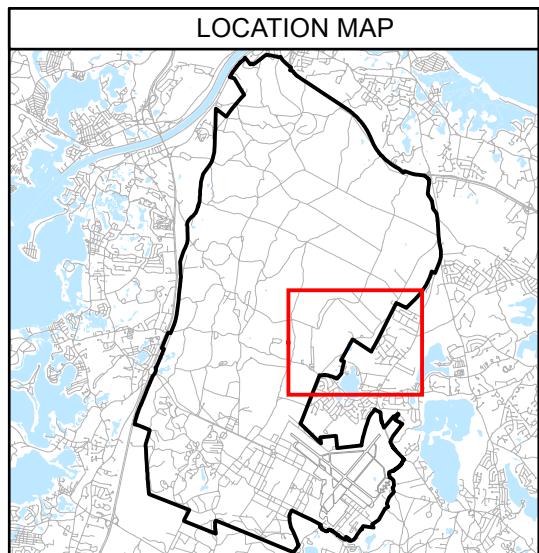
RDX in Groundwater

RDX in Groundwater (Contours Dashed Where Inferred)

- 0.6 to 2 $\mu\text{g/L}$
- 2 to 20 $\mu\text{g/L}$
- L Range Boundary
- Impact Area Boundary
- MMR Boundary

- 67.25 - Model Predicted Water Levels under 2011 Operational Conditions (feet mean sea level)

LOCATION MAP



NOTES & SOURCES

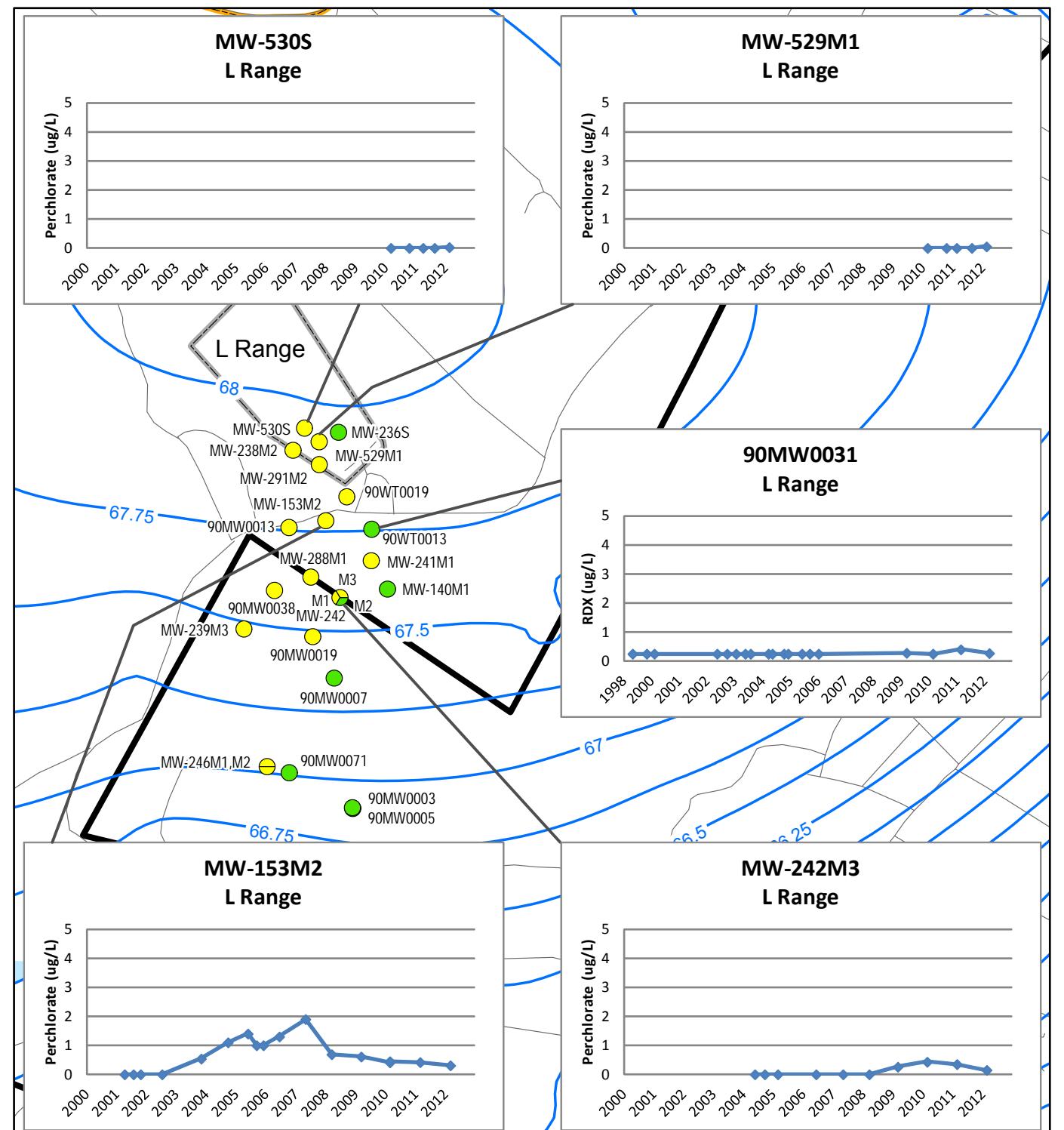
Basemap data from US Geological Survey 7 1/2 minute Topographic Maps. Source: MassGIS

TITLE

L Range RDX in Groundwater

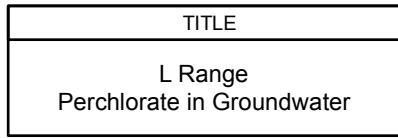
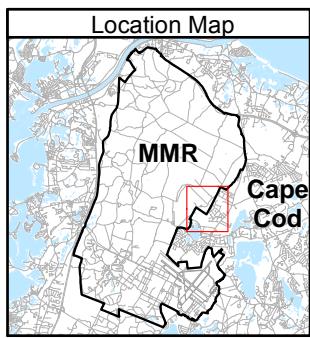


US Army Corps
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New England District
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May 31, 2012 DWN: MTW: CHKD: MRK



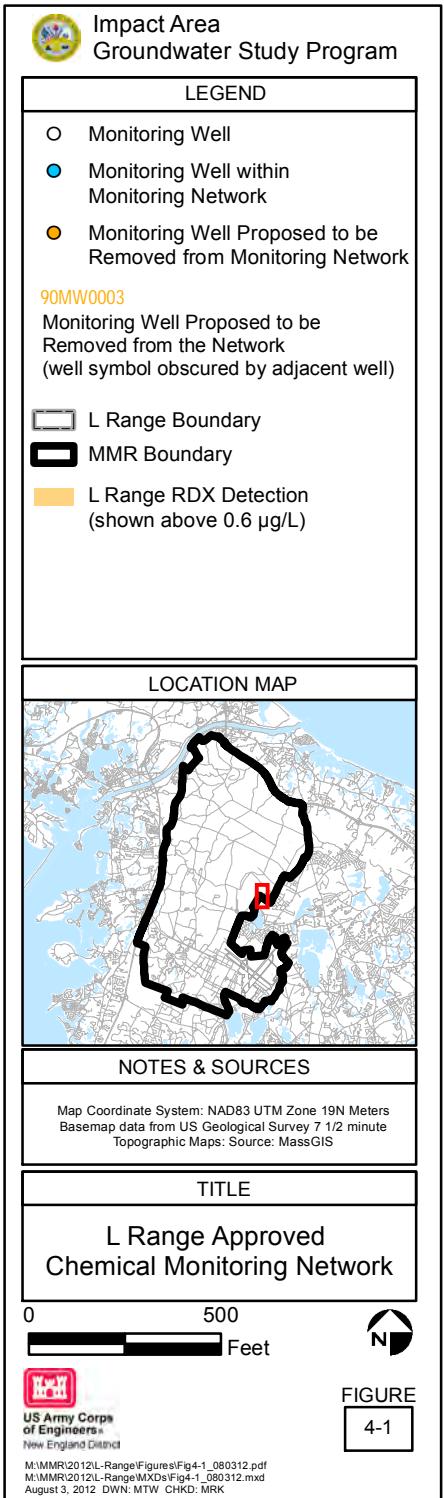
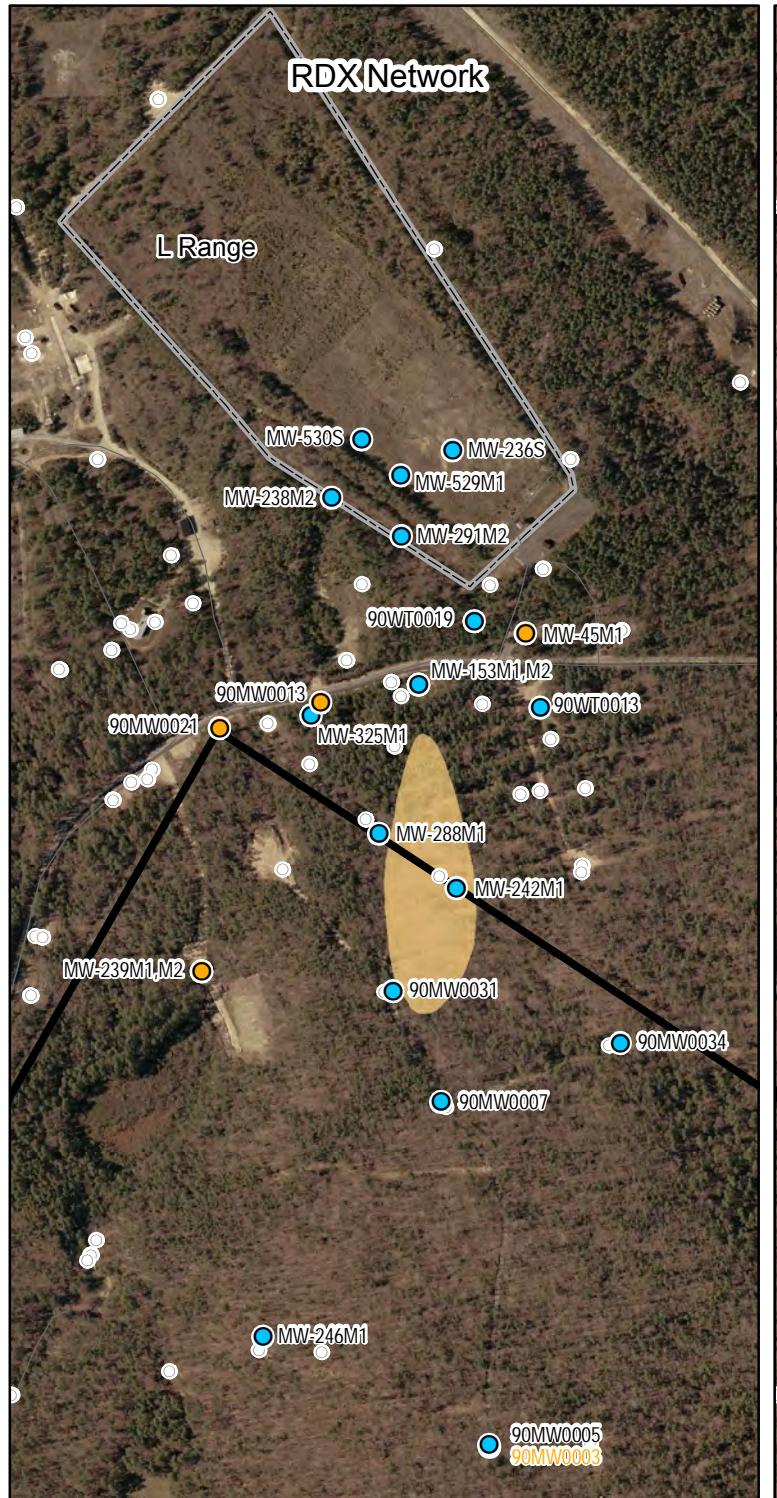
Legend

- L Range Boundary
- MMR Boundary
- 2011-2012 Perchlorate Detections in Groundwater
 - No Detection
 - Detection at or below 2 $\mu\text{g/L}$
 - Detection above 2 $\mu\text{g/L}$
 - Indicates different detections in different well screens
- 67.6 - Model Predicted Water Levels under 2011 Operational Conditions (feet mean sea level)



Impact Area
Groundwater Study Program

FIGURE
3-2



TABLES

Table 2-1
L Range Network Monitoring Wells, Sampling Frequencies, and Parameters

Location	Northing (meters)	Easting (meters)	Ground Elevation (ft msl)	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sampling Frequency	Parameters
90MW0003	4616429.38	373750.24	156.90	12.90	7.90	A	Explosives, Perchlorate
90MW0005	4616430.87	373749.67	156.50	-27.50	-32.50	A	Explosives, Perchlorate
90MW0007	4616703.52	373711.36	157.20	-21.80	-26.80	A	Explosives, Perchlorate
90MW0013	4617020.28	373616.13	147.40	71.40	61.40	A	Explosives, Perchlorate
90MW0019	4616790.57	373666.16	154.30	-6.70	-11.70	A	Perchlorate
90MW0021	4617000.14	373535.56	120.70	-6.30	-11.30	A	Explosives
90MW0031	4616791.18	373673.18	154.30	-41.00	-45.90	A	Explosives
90MW0034	4616750.25	373853.99	131.10	37.10	32.10	A	Explosives
90MW0038	4616887.93	373585.75	136.90	41.90	36.90	A	Perchlorate
90MW0071	4616504.50	373616.78	138.78	-11.63	-16.63	A	Perchlorate
90WT0013	4617016.42	373790.41	163.10	71.10	61.10	A	Explosives, Perchlorate
90WT0019	4617085.02	373737.83	163.00	81.00	60.00	A	Explosives, Perchlorate
MW-140M1	4616890.71	373823.42	160.03	53.03	43.03	A	Perchlorate
MW-153M1	4617034.60	373693.87	162.16	-36.84	-46.84	A	Explosives
MW-153M2	4617034.69	373693.81	162.16	18.16	8.16	A	Explosives, Perchlorate
MW-236S	4617220.49	373720.47	164.27	68.27	58.27	S	Explosives, Perchlorate
MW-238M2	4617182.83	373624.62	163.17	38.17	28.17	S	Explosives, Perchlorate
MW-239M1	4616806.88	373521.63	85.80	-94.20	-104.20	A	Explosives
MW-239M2	4616807.06	373521.63	85.80	-64.20	-74.20	A	Explosives
MW-239M3	4616806.97	373521.54	85.80	25.80	15.80	A	Perchlorate
MW-241M1	4616950.44	373789.52	159.83	62.83	52.83	A	Perchlorate
MW-242M1	4616872.76	373723.63	158.88	-76.12	-86.12	S*	Explosives, Perchlorate
MW-242M2	4616872.94	373723.64	158.88	-6.12	-16.12	A	Perchlorate
MW-242M3	4616882.56	373710.26	159.00	35.00	25.00	A	Perchlorate
MW-246M1	4616517.09	373570.10	127.28	-50.72	-60.72	A	Explosives, Perchlorate
MW-246M2	4616517.28	373570.11	127.28	32.28	22.28	A	Perchlorate
MW-288M1	4616916.00	373662.19	157.00	-33.00	-43.00	A	Explosives, Perchlorate
MW-291M2	4617152.42	373679.80	163.88	38.88	28.88	S	Explosives, Perchlorate
MW-325M1	4617009.93	373608.25	145.63	-26.37	-36.37	A	Explosives
MW-45M1	4617075.00	373778.39	164.04	-25.96	-35.96	A	Explosives
MW-529M1	4617200.60	373679.50	164.20	57.20	47.20	S	Explosives, Perchlorate
MW-530S	4617226.00	373646.00	163.13	66.13	56.13	S	Explosives, Perchlorate

Notes:

ft msl - feet above mean sea level
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

A - annual monitoring
S - semi-annual monitoring

Explosives - EPA Method SW846/8330
Perchlorate - EPA Method SW6850

S* - Well added to the program on a semi-annual sample frequency following approval of the 24 October 2011 Project Note. Semi-annual round occurred on 25 August 2011 prior to signing the Project Note.

Table 3-1
 L Range
 Groundwater Monitoring Results - May 2011 through April 2012

Well	Sample Type	Analyte	Parameter Label	Test Method	Reported Result (µg/L)	Qualifier	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sampling Date
90MW0003	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	12.9	7.9	02/23/2012
90MW0003	N	ND for 19 Analytes	Explosives	SW8330	ND	U	12.9	7.9	02/23/2012
90MW0005	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	-27.5	-32.5	02/23/2012
90MW0005	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-27.5	-32.5	02/23/2012
90MW0007	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	-21.8	-26.8	02/22/2012
90MW0007	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-21.8	-26.8	02/22/2012
90MW0013	N	Perchlorate	PCATE	SW6850	0.037	J	71.4	61.4	02/22/2012
90MW0013	N	ND for 19 Analytes	Explosives	SW8330	ND	U	71.4	61.4	02/22/2012
90MW0019	N	Perchlorate	PCATE	SW6850	0.15	J	-6.7	-11.7	03/05/2012
90MW0021	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-6.3	-11.3	02/22/2012
90MW0031	N	Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	SW8330	0.27		-41	-45.9	03/05/2012
90MW0031	N	ND for 18 Analytes	Explosives	SW8330	ND	U	-41	-45.9	03/05/2012
90MW0034	N	ND for 19 Analytes	Explosives	SW8330	ND	U	37.1	32.1	02/22/2012
90MW0038	N	Perchlorate	PCATE	SW6850	0.044	J	41.9	36.9	03/05/2012
90MW0071	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	-11.63	-16.63	02/23/2012
90WT0013	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	71.1	61.1	03/05/2012
90WT0013	N	ND for 19 Analytes	Explosives	SW8330	ND	U	71.1	61.1	03/05/2012
90WT0019	N	Perchlorate	PCATE	SW6850	0.022	J	81	60	02/23/2012
90WT0019	N	ND for 19 Analytes	Explosives	SW8330	ND	U	81	60	02/23/2012
MW-140M1	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	53.03	43.03	03/06/2012
MW-153M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-36.84	-46.84	03/06/2012
MW-153M2	N	Perchlorate	PCATE	SW6850	0.31	J	18.16	8.16	03/06/2012
MW-153M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	18.16	8.16	03/06/2012
MW-153M2	FD	Perchlorate	PCATE	SW6850	0.72	J	18.16	8.16	03/06/2012
MW-236S	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	68.27	58.27	02/21/2012
MW-236S	N	ND for 19 Analytes	Explosives	SW8330	ND	U	68.27	58.27	02/21/2012
MW-236S	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	68.27	58.27	08/19/2011
MW-236S	N	ND for 19 Analytes	Explosives	SW8330	ND	U	68.27	58.27	08/19/2011
MW-238M2	N	Perchlorate	PCATE	SW6850	0.035	J	38.17	28.17	03/07/2012
MW-238M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	38.17	28.17	03/07/2012
MW-238M2	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	38.17	28.17	08/25/2011
MW-238M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	38.17	28.17	08/25/2011
MW-239M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-94.2	-104.2	03/07/2012
MW-239M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-64.2	-74.2	03/07/2012
MW-239M3	N	Perchlorate	PCATE	SW6850	0.055	J	25.8	15.8	03/07/2012
MW-241M1	N	Perchlorate	PCATE	SW6850	0.16	J	62.83	52.83	03/06/2012
MW-242M1	N	Perchlorate	PCATE	SW6850	0.16	J	-76.12	-86.12	02/24/2012
MW-242M1	N	Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	SW8330	9.75		-76.12	-86.12	02/24/2012
MW-242M1	N	ND for 18 Analytes	Explosives	SW8330	ND	U	-76.12	-86.12	02/24/2012
MW-242M1	FD	Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	SW8330	9.7		-76.12	-86.12	02/24/2012
MW-242M1	FD	ND for 18 Analytes	Explosives	SW8330	ND	U	-76.12	-86.12	02/24/2012
MW-242M2	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	-6.12	-16.12	02/24/2012
MW-242M3	N	Perchlorate	PCATE	SW6850	0.15	J	35	25	02/24/2012
MW-242M3	FD	Perchlorate	PCATE	SW6850	0.17	J	35	25	02/24/2012
MW-246M1	N	Perchlorate	PCATE	SW6850	0.048	J	-50.72	-60.72	02/24/2012

Table 3-1

Well	Sample Type	Analyte	Parameter Label	Test Method	Reported Result (µg/L)	Qualifier	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sampling Date
MW-246M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-50.72	-60.72	02/24/2012
MW-246M2	N	Perchlorate	PCATE	SW6850	0.073	J	32.28	22.28	02/24/2012
MW-288M1	N	Perchlorate	PCATE	SW6850	0.15	J	-33	-43	02/24/2012
MW-288M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-33	-43	02/24/2012
MW-291M2	N	Perchlorate	PCATE	SW6850	0.036	J	38.88	28.88	03/07/2012
MW-291M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	38.88	28.88	03/07/2012
MW-291M2	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	38.88	28.88	08/25/2011
MW-291M2	N	ND for 19 Analytes	Explosives	SW8330	ND	U	38.88	28.88	08/25/2011
MW-325M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-26.37	-36.37	03/06/2012
MW-45M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	-25.96	-35.96	03/06/2012
MW-529M1	N	Perchlorate	PCATE	SW6850	0.051	J	57.2	47.2	02/21/2012
MW-529M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	57.2	47.2	02/21/2012
MW-529M1	FD	ND for 19 Analytes	Explosives	SW8330	ND	U	57.2	47.2	02/21/2012
MW-529M1	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	57.2	47.2	08/25/2011
MW-529M1	N	ND for 19 Analytes	Explosives	SW8330	ND	U	57.2	47.2	08/25/2011
MW-530S	N	Perchlorate	PCATE	SW6850	0.027	J	66.13	56.13	02/21/2012
MW-530S	N	ND for 19 Analytes	Explosives	SW8330	ND	U	66.13	56.13	02/21/2012
MW-530S	N	ND for 1 Analytes	Perchlorate	SW6850	ND	U	66.13	56.13	08/25/2011
MW-530S	N	ND for 19 Analytes	Explosives	SW8330	ND	U	66.13	56.13	08/25/2011

Legend

N = Normal Samples

msl = Mean Sea level

FD = Field Duplicate

ft = feet

ND = Non-Detect

U = Data Validation Qualifier referring to non-detected

PCate = Perchlorate

J = Data Validation Qualifier referring to estimated concentration

µg/l = Micrograms per liter

Reporting Limit for explosives and perchlorate are 0.2 $\mu\text{g/L}$

Table 4-1
Approved L Range Monitoring Well Sampling Frequencies, and Parameters

Location	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Approved Explosives Sampling Frequency	Proposed Explosives Sampling Frequency	Approved Perchlorate Sampling Frequency	Proposed Perchlorate Sampling Frequency
90MW0003	12.90	7.90	A	N/A	A	N/A
90MW0005	-27.50	-32.50	A	A	A	N/A
90MW0007	-21.80	-26.80	A	A	A	N/A
90MW0013	71.40	61.40	A	N/A	A	N/A
90MW0019	-6.70	-11.70	N/A	N/A	A	A
90MW0021	-6.30	-11.30	A	N/A	N/A	N/A
90MW0031	-41.00	-45.90	A	A	N/A	N/A
90MW0034	37.10	32.10	A	A	N/A	N/A
90MW0038	41.90	36.90	N/A	N/A	A	N/A
90MW0071	-11.63	-16.63	N/A	N/A	A	N/A
90WT0013	71.10	61.10	A	A	A	A
90WT0019	81.00	60.00	A	A	A	A
MW-140M1	53.03	43.03	N/A	N/A	A	A
MW-153M1	-36.84	-46.84	A	A	N/A	N/A
MW-153M2	18.16	8.16	A	A	A	A
MW-236S	68.27	58.27	S	S	S	N/A
MW-238M2	38.17	28.17	S	S	S	S
MW-239M1	-94.20	-104.20	A	N/A	N/A	N/A
MW-239M2	-64.20	-74.20	A	N/A	N/A	N/A
MW-239M3	25.80	15.80	N/A	N/A	A	N/A
MW-241M1	62.83	52.83	N/A	N/A	A	A
MW-242M1	-76.12	-86.12	S	S	S	S
MW-242M2	-6.12	-16.12	N/A	N/A	A	A
MW-242M3	35.00	25.00	N/A	N/A	A	A
MW-246M1	-50.72	-60.72	A	A	A	N/A
MW-246M2	32.28	22.28	N/A	N/A	A	N/A
MW-288M1	-33.00	-43.00	A	A	A	A

Table 4-1
Approved L Range Monitoring Well Sampling Frequencies, and Parameters

Location	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Approved Explosives Sampling Frequency	Proposed Explosives Sampling Frequency	Approved Perchlorate Sampling Frequency	Proposed Perchlorate Sampling Frequency
MW-291M2	38.88	28.88	S	S	S	S
MW-325M1	-26.37	-36.37	A	A	N/A	N/A
MW-45M1	-25.96	-35.96	A	N/A	N/A	N/A
MW-529M1	57.20	47.20	S	S	S	S
MW-530S	66.13	56.13	S	S	S	S

Notes:

ft msl - feet above mean sea level

RDX - hexahydro-1,3,5-trinitro-1,3,5-tetraocine

N/A - Not Applicable

Explosives - EPA Method SW846/8330

Perchlorate - EPA Method SW6850

A - Annual Monitoring

S - Semi-annual monitoring

Yellow highlights denote proposed changes to chemical monitoring program.

APPENDIX A

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate ($\mu\text{g/L}$)	RDX ($\mu\text{g/L}$)	HMX ($\mu\text{g/L}$)	TNT ($\mu\text{g/L}$)	2,4-DNT ($\mu\text{g/L}$)	2,6-DNT ($\mu\text{g/L}$)	2A-DNT ($\mu\text{g/L}$)	4A-DNT ($\mu\text{g/L}$)	Date
90MW0003	12.9	7.9	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2012
90MW0003	12.9	7.9	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/1/2011
90MW0003	12.9	7.9	N	0.2 U	0.2 U	0.2 U	6.3 U	0.4 U	0.44 U	35 U	0.4 U	2/23/2010
90MW0003	12.9	7.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.64 U	0.25 U	0.25 U	3/11/2009
90MW0003	12.9	7.9	N	1 U	0.25 U	0.25 U	7.8 U	0.25 U	0.36 U	42 U	0.25 U	3/20/2008
90MW0003	12.9	7.9	N	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12 U	0.25 U	5/3/2007
90MW0003	12.9	7.9	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	6/15/2006
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/6/2006
90MW0003	12.9	7.9	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/11/2005
90MW0003	12.9	7.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/11/2005
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/1/2005
90MW0003	12.9	7.9	N	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/1/2004
90MW0003	12.9	7.9	N	N/A	R	R	R	R	R	R	R	10/7/2004
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/8/2004
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/3/2004
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/4/2003
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/8/2003
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/31/2002
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/9/2002
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/10/2002
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/8/2001
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/25/2001
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/16/2001
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/30/2000
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	8/22/2000
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/4/2000
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	5 UU	5 U	0.25 U	10/7/1999
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/19/1999
90MW0003	12.9	7.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.99 U	0.25 U	6/10/1998
90MW0005	-27.5	-32.5	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2012
90MW0005	-27.5	-32.5	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/1/2011
90MW0005	-27.5	-32.5	N	0.2 U	0.2 U	0.2 U	9.4 U	0.6 U	0.6 U	44 U	0.6 U	2/23/2010
90MW0005	-27.5	-32.5	N	1 U	0.25 U	0.25 U	8.2 U	0.25 U	0.57 U	0.25 U	0.25 U	3/11/2009
90MW0005	-27.5	-32.5	N	1 U	0.25 U	0.25 U	2.6 U	0.25 U	0.25 U	13 U	0.25 U	3/20/2008
90MW0005	-27.5	-32.5	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.37 U	40 U	0.25 U	5/3/2007
90MW0005	-27.5	-32.5	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/15/2006
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.62 U	0.25 U	0.25 U	2/16/2006
90MW0005	-27.5	-32.5	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.45 U	0.25 U	0.25 U	10/11/2005
90MW0005	-27.5	-32.5	N	N/A	1 U	0.25 U	1 U	0.25 U	1 U	1 U	1 U	6/1/2005
90MW0005	-27.5	-32.5	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/13/2004
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.61 U	0.25 U	0.25 U	10/20/2004
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/8/2004
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.28 U	0.25 U	0.25 U	3/3/2004
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.4 U	0.25 U	0.25 U	10/4/2003
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.3 U	0.25 U	0.25 U	5/8/2003
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.91 U	0.25 U	0.25 U	12/31/2002
90MW0005	-27.5	-32.5	FD	N/A	0.25 U	0.25 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/13/2002
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/13/2002
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/25/2002
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/31/2000
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	10/26/1999
90MW0005	-27.5	-32.5	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	4/19/1999
90MW0007	-21.8	-26.8	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2012
90MW0007	-21.8	-26.8	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2011
90MW0007	-21.8	-26.8	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2010

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate ($\mu\text{g/L}$)	RDX ($\mu\text{g/L}$)	HMX ($\mu\text{g/L}$)	TNT ($\mu\text{g/L}$)	2,4-DNT ($\mu\text{g/L}$)	2,6-DNT ($\mu\text{g/L}$)	2A-DNT ($\mu\text{g/L}$)	4A-DNT ($\mu\text{g/L}$)	Date
90MW0007	-21.8	-26.8	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/12/2009
90MW0007	-21.8	-26.8	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/21/2008
90MW0007	-21.8	-26.8	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/2/2007
90MW0007	-21.8	-26.8	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/12/2006
90MW0007	-21.8	-26.8	FD	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/7/2004
90MW0007	-21.8	-26.8	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/7/2004
90MW0013	71.4	61.4	N	0.037 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2012
90MW0013	71.4	61.4	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2011
90MW0013	71.4	61.4	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/18/2010
90MW0013	71.4	61.4	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/13/2009
90MW0013	71.4	61.4	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/13/2008
90MW0013	71.4	61.4	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/13/2008
90MW0013	71.4	61.4	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/1/2007
90MW0013	71.4	61.4	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/15/2006
90MW0013	71.4	61.4	N	0.48 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/29/2003
90MW0013	71.4	61.4	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/28/2000
90MW0013	71.4	61.4	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/18/1999
90MW0013	71.4	61.4	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	4/20/1999
90MW0019	-6.7	-11.7	N	0.15 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/5/2012
90MW0019	-6.7	-11.7	N	0.28 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2011
90MW0019	-6.7	-11.7	N	0.16 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/22/2010
90MW0019	-6.7	-11.7	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/11/2009
90MW0019	-6.7	-11.7	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/18/2008
90MW0019	-6.7	-11.7	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/2/2007
90MW0019	-6.7	-11.7	FD	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/15/2006
90MW0019	-6.7	-11.7	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/15/2006
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/6/2006
90MW0019	-6.7	-11.7	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/19/2005
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/2/2005
90MW0019	-6.7	-11.7	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/2/2004
90MW0019	-6.7	-11.7	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/12/2004
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/7/2004
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/16/2004
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/11/2003
90MW0019	-6.7	-11.7	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/15/2003
90MW0019	-6.7	-11.7	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/15/2003
90MW0019	-6.7	-11.7	N	N/A	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.33 U	0.25 U	0.25 U	1/14/2003
90MW0019	-6.7	-11.7	N	0.64 J	0.25 U	0.25 U	0.46 U	1.2 U	0.25 U	2.4 U	0.25 U	9/19/2002
90MW0019	-6.7	-11.7	N	N/A	0.25 U	0.25 U	0.25 U	0.67 U	0.25 U	0.25 U	0.25 U	5/10/2002
90MW0019	-6.7	-11.7	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/31/2000
90MW0019	-6.7	-11.7	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/18/1999
90MW0019	-6.7	-11.7	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	4/21/1999
90MW0021	-6.3	-11.3	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2012
90MW0021	-6.3	-11.3	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2011
90MW0021	-6.3	-11.3	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/19/2010
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/12/2009
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/17/2008
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/1/2007
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2006
90MW0021	-6.3	-11.3	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/21/2005
90MW0021	-6.3	-11.3	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/16/2004
90MW0021	-6.3	-11.3	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/9/2004
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/2/2003
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/19/2002
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/1/2000

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate ($\mu\text{g/L}$)	RDX ($\mu\text{g/L}$)	HMX ($\mu\text{g/L}$)	TNT ($\mu\text{g/L}$)	2,4-DNT ($\mu\text{g/L}$)	2,6-DNT ($\mu\text{g/L}$)	2A-DNT ($\mu\text{g/L}$)	4A-DNT ($\mu\text{g/L}$)	Date	
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/18/1999	
90MW0021	-6.3	-11.3	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	4/22/1999	
90MW0031	-41	-45.9	N	N/A	0.27	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/5/2012	
90MW0031	-41	-45.9	N	N/A	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2011	
90MW0031	-41	-45.9	N	N/A	0.25	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2010	
90MW0031	-41	-45.9	N	N/A	0.28	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/11/2009	
90MW0031	-41	-45.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/6/2006	
90MW0031	-41	-45.9	FD	1 U	0.25 U	0.25 U	0.25 U	0.34 UJ	0.25 U	7.7 UJ	7.7 UJ	9/12/2005	
90MW0031	-41	-45.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.3 UJ	0.25 U	7.6 UJ	9/12/2005	
90MW0031	-41	-45.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/1/2005	
90MW0031	-41	-45.9	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/1/2004	
90MW0031	-41	-45.9	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/7/2004	
90MW0031	-41	-45.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/7/2004	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/16/2004	
90MW0031	-41	-45.9	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/25/2003	
90MW0031	-41	-45.9	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	7/25/2003	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/16/2003	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/15/2003	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/18/2002	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/10/2002	
90MW0031	-41	-45.9	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/2/2000	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/2/2000	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/25/1999	
90MW0031	-41	-45.9	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	4/22/1999	
90MW0034	37.1	32.1	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2012	
90MW0034	37.1	32.1	N	N/A	0.2 U	0.2 U	0.2 U	1.32 U	0.2 U	0.22 U	0.37 U	0.2 U	2/24/2011
90MW0034	35.1	32.1	N	N/A	0.2 U	0.2 U	0.2 U	1.5 U	0.2 U	0.2 U	4.4 U	0.2 U	3/2/2010
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	9.7 U	0.25 U	0.51 U	22 U	17 U	3/12/2009
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.5 U	1.3 U	3/18/2008
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.81 U	0.25 U	0.25 U	7.7 U	10 U	5/3/2007	
90MW0034	37.1	32.1	N	N/A	0.53 U	0.25 U	0.25 U	0.25 U	0.33 U	5.7 U	0.25 U	6/14/2006	
90MW0034	37.1	32.1	N	1 UU	0.31 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	12/19/2005	
90MW0034	37.1	32.1	FD	1 U	0.3 UJ	0.25 U	0.5 UJ	0.25 U	0.36 UJ	0.25 U	0.25 U	9/8/2005	
90MW0034	37.1	32.1	N	1 U	0.25 U	0.25 U	0.42 UJ	0.25 U	0.25 U	0.25 U	0.25 U	9/8/2005	
90MW0034	37.1	32.1	N	1 U	4 U	0.25 U	1 U	0.25 U	0.25 U	0.25 U	1 U	5/23/2005	
90MW0034	37.1	32.1	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/30/2004	
90MW0034	37.1	32.1	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/1/2004	
90MW0034	37.1	32.1	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/13/2004	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.29 U	0.25 U	0.25 U	5/13/2004	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/11/2004	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/13/2003	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.27 U	0.25 U	1.3 U	0.25 U	5/2/2003	
90MW0034	37.1	32.1	N	N/A	0.55	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/13/2003	
90MW0034	37.1	32.1	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8/13/2002	
90MW0034	37.1	32.1	N	N/A	0.26 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	8/12/2002	
90MW0034	37.1	32.1	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/24/2002	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.76 J	0.25 U	0.25 U	5/24/2002	
90MW0034	37.1	32.1	N	N/A	0.78 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/7/2001	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/8/2001	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/17/2001	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/30/2000	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	8/18/2000	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/5/2000	
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/7/1999	

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate ($\mu\text{g/L}$)	RDX ($\mu\text{g/L}$)	HMX ($\mu\text{g/L}$)	TNT ($\mu\text{g/L}$)	2,4-DNT ($\mu\text{g/L}$)	2,6-DNT ($\mu\text{g/L}$)	2A-DNT ($\mu\text{g/L}$)	4A-DNT ($\mu\text{g/L}$)	Date
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/20/1999
90MW0034	37.1	32.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.82 U	0.25 U	6/9/1998
90MW0038	41.9	36.9	N	0.044 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/5/2012
90MW0038	41.9	36.9	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/23/2011
90MW0038	41.9	36.9	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/2/2010
90MW0038	41.9	36.9	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/13/2009
90MW0038	41.9	36.9	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/18/2008
90MW0038	41.9	36.9	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/2/2007
90MW0038	41.9	36.9	FD	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/8/2006
90MW0038	41.9	36.9	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/8/2006
90MW0038	41.9	36.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/4/2006
90MW0038	41.9	36.9	N	0.5 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/19/2005
90MW0038	41.9	36.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/26/2005
90MW0038	41.9	36.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/7/2005
90MW0038	41.9	36.9	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/7/2004
90MW0038	41.9	36.9	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/7/2004
90MW0038	41.9	36.9	N	0.44 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/16/2004
90MW0038	41.9	36.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/11/2003
90MW0038	41.9	36.9	N	0.56 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/6/2003
90MW0038	41.9	36.9	N	0.78 J	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	1/13/2003
90MW0038	41.9	36.9	N	0.47 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/18/2002
90MW0038	41.9	36.9	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/24/2002
90MW0038	41.9	36.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/2/2000
90MW0038	41.9	36.9	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/19/1999
90MW0038	41.9	36.9	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	4/21/1999
90MW0071	-11.63	-16.63	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/23/2012
90MW0071	-11.63	-16.63	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/1/2011
90MW0071	-11.63	-16.63	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/26/2010
90MW0071	-11.63	-16.63	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/12/2009
90MW0071	-11.63	-16.63	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/20/2008
90MW0071	-11.63	-16.63	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/4/2007
90MW0071	-11.63	-16.63	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/8/2006
90MW0071	-11.63	-16.63	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/10/2006
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/29/2005
90MW0071	-11.63	-16.63	FD	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/1/2005
90MW0071	-11.63	-16.63	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/1/2005
90MW0071	-11.63	-16.63	FD	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/2/2004
90MW0071	-11.63	-16.63	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/2/2004
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/14/2004
90MW0071	-11.63	-16.63	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/13/2004
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/13/2004
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/22/2004
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/11/2003
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	5/14/2003
90MW0071	-11.63	-16.63	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/14/2003
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/2/2003
90MW0071	-11.63	-16.63	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/9/2002
90MW0071	-11.63	-16.63	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/20/2002
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/20/2002
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/8/2001
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/24/2001
90MW0071	-11.63	-16.63	N	5 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/18/2001
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/16/2001
90MW0071	-11.63	-16.63	N	5 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/31/2001
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/29/2000

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	8/21/2000
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/5/2000
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/4/1999
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/21/1999
90MW0071	-11.63	-16.63	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/9/1998
90WT0013	71.1	61.1	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/5/2012
90WT0013	71.1	61.1	N	0.2 U	0.2 U	0.2 U	0.92 U	0.2 U	0.63 U	0.2 U	0.2 U	2/24/2011
90WT0013	71.1	61.1	N	0.2 U	0.25 U	0.25 U	1.6 U	0.25 U	0.25 U	0.25 U	0.47 U	2/27/2009
90WT0013	71.1	61.1	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/12/2008
90WT0013	71.1	61.1	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.37 J	0.25 U	0.25 U	5/2/2007
90WT0013	71.1	61.1	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.73 U	9.4 U	3.8 U	6/20/2006
90WT0013	71.1	61.1	N	1 UJ	0.25 U	0.25 U	2.1 U	0.25 U	0.25 U	7.1 U	9.7 U	12/19/2005
90WT0013	71.1	61.1	N	1 UJ	0.25 U	0.25 U	3.1 U	0.25 U	0.36 U	0.25 U	6.4 U	9/19/2005
90WT0013	71.1	61.1	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/26/2005
90WT0013	71.1	61.1	N	1 U	0.25 UJ	0.25 UJ	8.8 UJ	0.56 UJ	0.57 UJ	0.25 UJ	0.25 UJ	1/31/2005
90WT0013	71.1	61.1	N	1 UJ	4 U	0.25 U	0 R	0.25 U	0.91 U	0.25 U	15 U	10/20/2004
90WT0013	71.1	61.1	N	1 UJ	4 U	0.25 U	4 U	0.51 U	0.65 U	0.25 U	4 U	5/11/2004
90WT0013	71.1	61.1	N	N/A	4 U	0.25 U	4 U	0.25 U	4 U	4 U	12 U	1/13/2004
90WT0013	71.1	61.1	N	2.8 J	10 U	10 U	10 U	10 U	12 U	10 U	44 U	9/8/2003
90WT0013	71.1	61.1	N	N/A	10 U	0.25 U	10 U	4 U	4.8 U	23 U	12 U	5/1/2003
90WT0013	71.1	61.1	N	N/A	4 U	0.25 U	4 U	4 U	8.4 U	5.8 U	4 U	1/30/2003
90WT0013	71.1	61.1	FD	N/A	1.2 J	0.25 U	4 U	4 U	8.4 U	9.2 U	8.8 U	10/9/2002
90WT0013	71.1	61.1	N	N/A	1.1 J	0.25 U	4 U	4 U	8.1 U	8.5 U	9.5 U	10/9/2002
90WT0013	71.1	61.1	FD	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/9/2002
90WT0013	71.1	61.1	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/9/2002
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	1.5 J	1.3 U	3.3 U	5/19/2002
90WT0013	71.1	61.1	N	N/A	0.83 J	0.25 U	0.25 U	0.25 U	0.48	0.25 U	0.25 U	1/11/2002
90WT0013	71.1	61.1	N	5 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/25/2001
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/20/2001
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/30/2000
90WT0013	71.1	61.1	N	5 U	0.25 U	0.25 U	0.25 U	0.38 J	0.25 U	0.25 U	0.25 U	8/17/2000
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/2/2000
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	10/11/1999
90WT0013	71.1	61.1	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	1/14/1999
90WT0013	71.1	61.1	N	N/A	5.2 J	0.25 U	0.25 U	5 U	5 U	0.25 U	N/A	1/16/1998
90WT0019	81	60	N	0.022 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2012
90WT0019	81	60	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/28/2011
90WT0019	81	60	N	0.2 U	0.2 U	0.2 U	0.41 U	0.2 U	0.2 U	0.2 U	0.2 U	2/18/2010
90WT0019	81	60	N	1 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.39 U	3/13/2009
90WT0019	81	60	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.45 U	0.76 U	3/12/2008
90WT0019	81	60	N	1.2 U	0.25 U	0.25 U	2 U	0.25 U	0.43 U	0.26 U	2.5 U	4/30/2007
90WT0019	81	60	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/28/2003
MW-140M1	53.03	43.03	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/6/2012
MW-140M1	53.03	43.03	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/21/2011
MW-140M1	53.03	43.03	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/17/2010
MW-140M1	53.03	43.03	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/10/2009
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5.4 U	0.25 U	3/14/2008
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/1/2007
MW-140M1	53.03	43.03	FD	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2006
MW-140M1	53.03	43.03	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2006
MW-140M1	53.03	43.03	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/13/2005
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/13/2005
MW-140M1	53.03	43.03	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11 UJ	9/13/2005
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11 UJ	9/13/2005

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate ($\mu\text{g/L}$)	RDX ($\mu\text{g/L}$)	HMX ($\mu\text{g/L}$)	TNT ($\mu\text{g/L}$)	2,4-DNT ($\mu\text{g/L}$)	2,6-DNT ($\mu\text{g/L}$)	2A-DNT ($\mu\text{g/L}$)	4A-DNT ($\mu\text{g/L}$)	Date
MW-140M1	53.03	43.03	N	1 U	4 U	0.25 U	4 U	1 U	4 UJ	4 U	R	5/26/2005
MW-140M1	53.03	43.03	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/16/2004
MW-140M1	53.03	43.03	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/27/2004
MW-140M1	53.03	43.03	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/18/2004
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/18/2004
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/18/2003
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/31/2003
MW-140M1	53.03	43.03	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/10/2003
MW-140M1	53.03	43.03	N	1 U	0.61 J	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/24/2002
MW-140M1	53.03	43.03	N	5 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	10/29/2001
MW-140M1	53.03	43.03	N	5 U	0.25 U	0.25 U	0.25 U	5.4 U	5.4 U	0.25 U	0.25 U	6/21/2001
MW-140M1	53.03	43.03	N	5 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	2/13/2001
MW-153M1	-36.84	-46.84	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/6/2012
MW-153M1	-36.84	-46.84	N	N/A	0.48	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/1/2011
MW-153M1	-36.84	-46.84	FD	N/A	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2010
MW-153M1	-36.84	-46.84	N	N/A	1.07	0.206 U	0.206 U	0.206 U	0.206 U	0.206 U	0.206 U	2/24/2010
MW-153M1	-36.84	-46.84	FD	N/A	1.8	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/10/2009
MW-153M1	-36.84	-46.84	N	N/A	1.8	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/10/2009
MW-153M1	-36.84	-46.84	FD	N/A	2.8	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/14/2008
MW-153M1	-36.84	-46.84	N	N/A	2.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/14/2008
MW-153M1	-36.84	-46.84	N	N/A	3.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/30/2007
MW-153M1	-36.84	-46.84	N	N/A	2.9	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/13/2006
MW-153M1	-36.84	-46.84	FD	1 U	2.9 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/29/2005
MW-153M1	-36.84	-46.84	N	1 U	2.7 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/29/2005
MW-153M1	-36.84	-46.84	N	1 U	3.2 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/7/2005
MW-153M1	-36.84	-46.84	N	1 U	3.2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/24/2005
MW-153M1	-36.84	-46.84	N	N/A	5.4	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/3/2004
MW-153M1	-36.84	-46.84	N	1 UJ	4.5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/23/2004
MW-153M1	-36.84	-46.84	N	N/A	3.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2004
MW-153M1	-36.84	-46.84	N	N/A	5.3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/19/2003
MW-153M1	-36.84	-46.84	N	1 U	4.4	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/30/2003
MW-153M1	-36.84	-46.84	N	N/A	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/24/2003
MW-153M1	-36.84	-46.84	N	N/A	6.8	0.25 U	0.25 U	5.1 UJ	5.1 U	0.25 U	0.25 U	12/2/2002
MW-153M1	-36.84	-46.84	N	N/A	6.5	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	9/30/2002
MW-153M1	-36.84	-46.84	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/9/2002
MW-153M1	-36.84	-46.84	N	N/A	6.7 J	0.25 UJ	0.25 UJ	5 U	5 U	0.25 UJ	0.25 UJ	4/26/2002
MW-153M1	-36.84	-46.84	N	5 U	7.8	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	10/24/2001
MW-153M1	-36.84	-46.84	N	5 U	8.8	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	7/24/2001
MW-153M1	-36.84	-46.84	N	5 U	9.2	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	3/23/2001
MW-153M2	18.16	8.16	FD	0.72 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/6/2012
MW-153M2	18.16	8.16	N	0.31 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/6/2012
MW-153M2	18.16	8.16	FD	0.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/1/2011
MW-153M2	18.16	8.16	N	0.42	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/1/2011
MW-153M2	18.16	8.16	FD	0.41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2010
MW-153M2	18.16	8.16	N	0.448	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2010
MW-153M2	18.16	8.16	FD	0.57 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/10/2009
MW-153M2	18.16	8.16	N	0.61 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/10/2009
MW-153M2	18.16	8.16	FD	0.69 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/14/2008
MW-153M2	18.16	8.16	N	0.69 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/14/2008
MW-153M2	18.16	8.16	N	1.9	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/30/2007
MW-153M2	18.16	8.16	N	1.3 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/13/2006
MW-153M2	18.16	8.16	N	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/29/2005
MW-153M2	18.16	8.16	N	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/7/2005
MW-153M2	18.16	8.16	N	1.4	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/24/2005
MW-153M2	18.16	8.16	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/3/2004

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-153M2	18.16	8.16	N	1.1 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/23/2004
MW-153M2	18.16	8.16	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2004
MW-153M2	18.16	8.16	N	0.54 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/30/2003
MW-153M2	18.16	8.16	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/2/2002
MW-153M2	18.16	8.16	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	10/1/2002
MW-153M2	18.16	8.16	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	10/1/2002
MW-153M2	18.16	8.16	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/9/2002
MW-153M2	18.16	8.16	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/26/2002
MW-153M2	18.16	8.16	N	5 U	0.25 U	0.25 U	0.25 U	5.1 U	0.25 U	0.25 U	0.25 U	10/19/2001
MW-153M2	18.16	8.16	N	5 U	0.25 U	0.25 U	0.25 U	5 U	0.25 U	0.25 U	0.25 U	7/24/2001
MW-153M2	18.16	8.16	N	5 U	0.25 U	0.25 U	0.25 U	5.2 U	0.25 U	0.25 U	0.25 U	4/6/2001
MW-236S	68.27	58.27	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2012
MW-236S	68.27	58.27	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	8/19/2011
MW-236S	68.27	58.27	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2011
MW-236S	68.27	58.27	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	10/19/2010
MW-236S	68.27	58.27	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/17/2010
MW-236S	68.27	58.27	N	0.06 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/25/2009
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/5/2009
MW-236S	68.27	58.27	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/27/2006
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/27/2006
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	0.25 U	0.25 U	0.25 U	11/7/2005
MW-236S	68.27	58.27	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/13/2005
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/13/2005
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	0.25 U	0.25 U	0.25 U	3/23/2005
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/21/2004
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/30/2004
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/23/2004
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	5.3 U	0.25 U	0.25 U	0.25 U	6/30/2003
MW-236S	68.27	58.27	FD	2 U	0.25 U	0.25 U	0.25 U	5.3 U	0.25 U	0.25 U	0.25 U	3/20/2003
MW-236S	68.27	58.27	N	2 U	0.25 U	0.25 U	0.25 U	5.3 U	0.25 U	0.25 U	0.25 U	3/20/2003
MW-236S	68.27	58.27	N	1 U	0.25 U	0.25 U	0.25 U	5.3 U	0.25 U	0.25 U	0.25 U	10/16/2002
MW-238M2	38.17	28.17	N	0.035 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/7/2012
MW-238M2	38.17	28.17	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	8/25/2011
MW-238M2	38.17	28.17	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/28/2011
MW-238M2	38.17	28.17	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	10/19/2010
MW-238M2	38.17	28.17	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/26/2010
MW-238M2	38.17	28.17	N	0.046 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/25/2009
MW-238M2	38.17	28.17	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/4/2006
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/4/2006
MW-238M2	38.17	28.17	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/7/2005
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/7/2005
MW-238M2	38.17	28.17	FD	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/8/2005
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/8/2005
MW-238M2	38.17	28.17	FD	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/16/2004
MW-238M2	38.17	28.17	N	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/16/2004
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/23/2004
MW-238M2	38.17	28.17	N	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/18/2004
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/23/2004
MW-238M2	38.17	28.17	N	1 U	0.25 U	0.25 U	0.25 U	5.4 U	5.4 U	0.25 U	0.25 U	6/25/2003
MW-238M2	38.17	28.17	N	1 U	0.25 UJ	0.25 UJ	0.25 UJ	5 U	5 U	0.25 UJ	0.25 UJ	3/3/2003
MW-238M2	38.17	28.17	N	N/A	0.25 U	0.25 U	0.25 U	5.3 U	5.3 U	0.25 U	0.25 U	10/16/2002
MW-239M1	-94.2	-104.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/7/2012
MW-239M1	-94.2	-104.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/28/2011
MW-239M1	-94.2	-104.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2010

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-239M1	-94.2	-104.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/9/2009
MW-239M1	-94.2	-104.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/19/2008
MW-239M1	-94.2	-104.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/3/2007
MW-239M1	-94.2	-104.2	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/7/2006
MW-239M1	-94.2	-104.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/7/2006
MW-239M1	-94.2	-104.2	FD	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/3/2006
MW-239M1	-94.2	-104.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/3/2006
MW-239M1	-94.2	-104.2	N	0.46 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9/26/2005
MW-239M1	-94.2	-104.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/9/2005
MW-239M1	-94.2	-104.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11/18/2004
MW-239M1	-94.2	-104.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9/16/2004
MW-239M1	-94.2	-104.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/12/2004
MW-239M1	-94.2	-104.2	N	1 U	0.25 U	0.25 U	0.25 U	5.4 U	5.4 U	0.25 U	0.25 U	6/23/2003
MW-239M1	-94.2	-104.2	N	1 U	0.25 UJ	0.25 UJ	0.25 UJ	5.1 U	5.1 U	0.25 UJ	0.25 UJ	3/5/2003
MW-239M1	-94.2	-104.2	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	11/12/2002
MW-239M2	-64.2	-74.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/7/2012
MW-239M2	-64.2	-74.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/28/2011
MW-239M2	-64.2	-74.2	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2010
MW-239M2	-64.2	-74.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/9/2009
MW-239M2	-64.2	-74.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/19/2008
MW-239M2	-64.2	-74.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/4/2007
MW-239M2	-64.2	-74.2	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/7/2006
MW-239M2	-64.2	-74.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/3/2006
MW-239M2	-64.2	-74.2	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/26/2005
MW-239M2	-64.2	-74.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/9/2005
MW-239M2	-64.2	-74.2	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/18/2004
MW-239M2	-64.2	-74.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9/16/2004
MW-239M2	-64.2	-74.2	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/12/2004
MW-239M2	-64.2	-74.2	N	1 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	6/23/2003
MW-239M2	-64.2	-74.2	N	1 U	0.25 UJ	0.25 UJ	0.25 UJ	5 U	5 U	0.25 UJ	0.25 UJ	3/5/2003
MW-239M2	-64.2	-74.2	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	11/12/2002
MW-239M3	25.8	15.8	N	0.055 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/7/2012
MW-239M3	25.8	15.8	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/28/2011
MW-239M3	25.8	15.8	N	0.094 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2010
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/9/2009
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/19/2008
MW-239M3	25.8	15.8	FD	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/4/2007
MW-239M3	25.8	15.8	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/4/2007
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/7/2006
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/3/2006
MW-239M3	25.8	15.8	N	0.6 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/27/2005
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/9/2005
MW-239M3	25.8	15.8	N	0.5 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/23/2005
MW-239M3	25.8	15.8	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/16/2004
MW-239M3	25.8	15.8	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/16/2004
MW-239M3	25.8	15.8	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/12/2004
MW-239M3	25.8	15.8	N	0.62 J	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	6/23/2003
MW-239M3	25.8	15.8	N	0.784 J	0.25 UJ	0.25 UJ	0.25 UJ	5 U	5 U	0.25 UJ	0.25 UJ	3/7/2003
MW-239M3	25.8	15.8	N	0.7 J	0.25 UJ	0.25 UJ	0.25 UJ	5.2 U	5.2 U	0.25 UJ	0.25 UJ	11/12/2002
MW-241M1	62.83	52.83	N	0.16 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/6/2012
MW-241M1	62.83	52.83	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/22/2011
MW-241M1	62.83	52.83	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/17/2010
MW-241M1	62.83	52.83	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/10/2009
MW-241M1	62.83	52.83	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/14/2008
MW-241M1	62.83	52.83	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/1/2007

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-241M1	62.83	52.83	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/13/2006
MW-241M1	62.83	52.83	N	1 UJ	0.25 U	0.25 U	0.5 U	0.25 U	0.25 U	0.28 U	0.89 U	2/15/2006
MW-241M1	62.83	52.83	FD	1 U	0.66 U	0.39 U	7.8 U	5 U	5 U	0.48 U	0.25 U	11/7/2005
MW-241M1	62.83	52.83	N	1 U	0.61 U	0.34 U	7.7 U	5.1 U	5.1 U	0.49 U	0.25 U	11/7/2005
MW-241M1	62.83	52.83	N	1 U	1.1 U	0.25 U	1.6 U	0.52 U	1 J	0.97 U	1.3 U	5/24/2005
MW-241M1	62.83	52.83	N	1 U	2.6 U	0.25 U	0.25 U	4.9 U	4.9 U	0.57 U	18 U	1/31/2005
MW-241M1	62.83	52.83	N	1 UJ	4 U	0.25 U	4 U	4 U	4 U	20 U	30 U	9/29/2004
MW-241M1	62.83	52.83	N	1 U	0.88 U	0.25 U	0.25 U	0.25 U	1.4 U	0.38 U	0.25 U	6/29/2004
MW-241M1	62.83	52.83	N	0.45 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/20/2003
MW-241M1	62.83	52.83	N	N/A	0.44 U	0.25 U	0.25 U	5.3 U	5.3 U	1.3 U	19 U	6/19/2003
MW-241M1	62.83	52.83	FD	1 U	0.25 UJ	0.25 UJ	0.25 UJ	5 U	5 U	12 UJ	0.25 UJ	3/7/2003
MW-241M1	62.83	52.83	N	1 U	0.25 UJ	0.25 UJ	0.25 UJ	5 U	5 U	13 UJ	0.25 UJ	3/7/2003
MW-241M1	62.83	52.83	N	1 U	1.7 U	0.25 U	0.25 U	5 U	5.8 U	15 U	4.7 U	11/8/2002
MW-242M1	-76.12	-86.12	FD	N/A	9.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2012
MW-242M1	-76.12	-86.12	N	0.16 J	9.75	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2012
MW-242M1	-76.12	-86.12	FD	N/A	3.53	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/25/2011
MW-242M1	-76.12	-86.12	N	0.2 U	3.42	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/25/2011
MW-242M1	-76.12	-86.12	FD	N/A	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/25/2010
MW-242M1	-76.12	-86.12	N	0.16 J	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/25/2010
MW-242M1	-76.12	-86.12	FD	0.2 J	1.4	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/3/2009
MW-242M1	-76.12	-86.12	N	0.22 J	1.3	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/3/2009
MW-242M1	-76.12	-86.12	N	1 U	0.62	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/19/2008
MW-242M1	-76.12	-86.12	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/2/2007
MW-242M1	-76.12	-86.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/7/2006
MW-242M1	-76.12	-86.12	N	0.37 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/29/2005
MW-242M1	-76.12	-86.12	FD	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/20/2005
MW-242M1	-76.12	-86.12	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/20/2005
MW-242M1	-76.12	-86.12	N	0.39 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2005
MW-242M1	-76.12	-86.12	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/18/2004
MW-242M1	-76.12	-86.12	N	0.56 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/15/2004
MW-242M1	-76.12	-86.12	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	6/25/2004
MW-242M1	-76.12	-86.12	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/18/2004
MW-242M1	-76.12	-86.12	N	1 U	0.42 J	0.25 U	0.25 U	5 U	5 U	0.25 U	14 U	6/23/2003
MW-242M1	-76.12	-86.12	N	1 U	0.25 U	0.25 U	0.25 U	5 U	5 U	8.3 U	5 U	3/6/2003
MW-242M1	-76.12	-86.12	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11/7/2002
MW-242M1	-76.12	-86.12	N	N/A	0.53 U	0.25 U	2.6 U	5.1 U	5.1 U	0.25 U	3.4 U	11/7/2002
MW-242M2	-6.12	-16.12	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2012
MW-242M2	-6.12	-16.12	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2011
MW-242M2	-6.12	-16.12	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2010
MW-242M2	-6.12	-16.12	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/3/2009
MW-242M2	-6.12	-16.12	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/19/2008
MW-242M2	-6.12	-16.12	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/2/2007
MW-242M2	-6.12	-16.12	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/7/2006
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/29/2005
MW-242M2	-6.12	-16.12	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/20/2005
MW-242M2	-6.12	-16.12	FD	1 U	0.27 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2005
MW-242M2	-6.12	-16.12	N	1 U	0.47 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2005
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/18/2004
MW-242M2	-6.12	-16.12	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/15/2004
MW-242M2	-6.12	-16.12	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/25/2004
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/25/2004
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/18/2004
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	6/23/2003
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	5.3 U	5.3 U	3.3 U	0.25 U	3/5/2003
MW-242M2	-6.12	-16.12	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	5.2 U	0.25 U	0.25 U	11/7/2002

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-242M3	35	25	FD	0.17 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2012
MW-242M3	35	25	N	0.15 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2012
MW-242M3	35	25	FD	0.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2011
MW-242M3	35	25	N	0.35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2011
MW-242M3	35	25	N	0.43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2010
MW-242M3	35	25	N	0.26 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/3/2009
MW-242M3	35	25	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/19/2008
MW-242M3	35	25	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/3/2007
MW-242M3	35	25	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/7/2006
MW-242M3	35	25	N	1 U	0.25 U	0.25 U	0.98 U	5 U	5 U	0.25 U	28 U	2/24/2005
MW-242M3	35	25	N	1 U	0.25 U	0.25 U	0.25 U	5 UJ	5 UJ	0.25 U	0.25 U	9/17/2004
MW-242M3	35	25	N	1 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	5/19/2004
MW-246M1	-50.72	-60.72	N	0.048 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2012
MW-246M1	-50.72	-60.72	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2011
MW-246M1	-50.72	-60.72	N	0.041 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/25/2010
MW-246M1	-50.72	-60.72	N	1 U	1.9 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/9/2009
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/20/2008
MW-246M1	-50.72	-60.72	N	1 UU	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/3/2007
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/6/2006
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1/16/2006
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/21/2005
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/4/2005
MW-246M1	-50.72	-60.72	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/16/2004
MW-246M1	-50.72	-60.72	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/12/2004
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	7/13/2004
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	8/7/2003
MW-246M1	-50.72	-60.72	N	2 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	3/21/2003
MW-246M1	-50.72	-60.72	N	1 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	1/6/2003
MW-246M2	32.28	22.28	N	0.073 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/24/2012
MW-246M2	32.28	22.28	N	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/23/2011
MW-246M2	32.28	22.28	FD	0.054 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2010
MW-246M2	32.28	22.28	N	0.055 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2/25/2010
MW-246M2	32.28	22.28	N	0.36 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/9/2009
MW-246M2	32.28	22.28	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/20/2008
MW-246M2	32.28	22.28	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5/3/2007
MW-246M2	32.28	22.28	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/7/2006
MW-246M2	32.28	22.28	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10/29/2005
MW-246M2	32.28	22.28	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/25/2005
MW-246M2	32.28	22.28	N	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	8/7/2003
MW-246M2	32.28	22.28	N	2 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	3/21/2003
MW-246M2	32.28	22.28	N	1 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	1/6/2003
MW-288M1	-33	-43	N	0.15 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/24/2012
MW-288M1	-33	-43	N	0.24 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/23/2011
MW-288M1	-33	-43	N	0.09 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/26/2010
MW-288M1	-33	-43	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/27/2009
MW-288M1	-33	-43	FD	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/17/2008
MW-288M1	-33	-43	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.56 U	13 U	4.5 U	3/17/2008
MW-288M1	-33	-43	FD	1 UJ	0.25 U	0.25 U	0.47 U	0.25 U	0.71 U	14 U	0.25 U	5/2/2007
MW-288M1	-33	-43	N	1 UJ	0.25 U	0.25 U	0.55 U	0.25 U	0.66 U	13 U	0.25 U	5/2/2007
MW-288M1	-33	-43	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2006
MW-288M1	-33	-43	N	1 U	0.25	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/1/2006
MW-288M1	-33	-43	FD	0.49 J	0.27 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/21/2005
MW-288M1	-33	-43	N	0.71 J	0.28 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/21/2005
MW-288M1	-33	-43	N	0.47 J	0.41 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/6/2005
MW-288M1	-33	-43	N	0.51 J	0.47	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/17/2004

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-288M1	-33	-43	N	0.76 J	0.9	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2004
MW-288M1	-33	-43	N	0.96 J	0.67	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/16/2004
MW-288M1	-33	-43	FD	1.24	0.87	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/1/2003
MW-288M1	-33	-43	N	1.17	0.87	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	12/1/2003
MW-291M2	38.88	28.88	N	0.036 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/7/2012
MW-291M2	38.88	28.88	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	8/25/2011
MW-291M2	38.88	28.88	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/28/2011
MW-291M2	38.88	28.88	FD	0.2 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/19/2010
MW-291M2	38.88	28.88	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	10/19/2010
MW-291M2	38.88	28.88	N	0.068 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/19/2010
MW-291M2	38.88	28.88	N	0.062 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/25/2009
MW-291M2	38.88	28.88	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3/11/2008
MW-291M2	38.88	28.88	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4/30/2007
MW-291M2	38.88	28.88	N	1 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/13/2006
MW-291M2	38.88	28.88	FD	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/21/2005
MW-291M2	38.88	28.88	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/21/2005
MW-291M2	38.88	28.88	N	1 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	10/14/2004
MW-291M2	38.88	28.88	N	1 U	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	6/8/2004
MW-291M2	38.88	28.88	FD	1 U	0.25 U	0.25 U	0.25 U	5.1 U	5.1 U	0.25 U	0.25 U	12/22/2003
MW-291M2	38.88	28.88	N	1 U	0.25 U	0.25 U	0.25 U	5.2 U	5.2 U	0.25 U	0.25 U	12/22/2003
MW-325M1	-26.37	-36.37	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/6/2012
MW-325M1	-26.37	-36.37	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2011
MW-325M1	-26.37	-36.37	N	N/A	0.28	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/19/2010
MW-325M1	-26.37	-36.37	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/27/2009
MW-325M1	-26.37	-36.37	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/17/2008
MW-325M1	-26.37	-36.37	FD	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/1/2007
MW-325M1	-26.37	-36.37	N	N/A	0.28	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5/1/2007
MW-325M1	-26.37	-36.37	N	N/A	0.26	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/13/2006
MW-325M1	-26.37	-36.37	N	N/A	0.36 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2/15/2006
MW-325M1	-26.37	-36.37	N	N/A	0.33 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	11/28/2005
MW-325M1	-26.37	-36.37	N	1 U	0.58	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	1/13/2005
MW-325M1	-26.37	-36.37	FD	1 U	0.6	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	9/15/2004
MW-325M1	-26.37	-36.37	N	1 U	0.6	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	9/15/2004
MW-325M1	-26.37	-36.37	N	1 U	0.5	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	5/19/2004
MW-45M1	-25.96	-35.96	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/6/2012
MW-45M1	-25.96	-35.96	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2011
MW-45M1	-25.96	-35.96	N	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/17/2010
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/10/2009
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	3/13/2008
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4/30/2007
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	6/14/2006
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/15/2005
MW-45M1	-25.96	-35.96	N	1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/29/2004
MW-45M1	-25.96	-35.96	N	1 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	9/29/2004
MW-45M1	-25.96	-35.96	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/21/2004
MW-45M1	-25.96	-35.96	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7/25/2003
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	7/25/2003
MW-45M1	-25.96	-35.96	N	1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6/9/2003
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	5 UJ	5 U	0.25 U	0.25 U	11/15/1999
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	8/23/1999
MW-45M1	-25.96	-35.96	N	N/A	0.25 U	0.25 U	0.25 U	5 U	5 U	0.25 U	0.25 U	5/24/1999
MW-529M1	57.72	47.72	FD	N/A	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2012
MW-529M1	57.72	47.72	N	0.051 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2012
MW-529M1	57.72	47.72	N	0.2 U	0.2 U	0.2 U	0.2 U	0.29	0.2 U	0.2 U	0.2 U	8/25/2011
MW-529M1	57.72	47.72	FD	N/A	0.2 U	0.2 U	0.27	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2011
MW-529M1	57.72	47.72	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/22/2011

Appendix A L Range Groundwater Monitoring Results Crosstab Query – Inception to Date (Perchlorate and Limited Explosives)

Well	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Sample Type	Perchlorate (µg/L)	RDX (µg/L)	HMX (µg/L)	TNT (µg/L)	2,4-DNT (µg/L)	2,6-DNT (µg/L)	2A-DNT (µg/L)	4A-DNT (µg/L)	Date
MW-529M1	57.72	47.72	N	0.2 U	0.2 U	0.22	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	10/19/2010
MW-529M1	57.72	47.72	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/2/2010
MW-530S	68.56	58.56	N	0.027 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2/21/2012
MW-530S	68.56	58.56	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	8/25/2011
MW-530S	68.56	58.56	N	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4/6/2011
MW-530S	68.56	58.56	N	0.2 U	0.25 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	10/19/2010
MW-530S	68.56	58.56	N	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3/8/2010

Legend

N = Normal Samples

FD = Field Duplicate

µg/L = Micrograms per liter

msl = Mean Sea level

ft = feet

U = Data Validation Qualifier referring to non-detect

J = Data Validation Qualifier referring to estimated concentration

N/A = Not Applicable

RDX = HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE

HMX = OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE

TNT = 2,4,6-TRINITROTOLUENE

2,6-DNT = 2,6-DINITROTOLUENE

2,4-DNT = 2,4-DINITROTOLUENE

2A-DNT = 2-AMINO-4,6-DINITROTOLUENE

4A-DNT = 4-AMINO-2,6-DINITROTOLUENE

Source EDMS Download : 20 April 2012

APPENDIX B

PROJECT NOTE

Client, Project and Location:
Impact Area Groundwater Study Program
L Range Chemical Monitoring Network
Camp Edwards, MA

Subject: L Range Optimized Chemical Monitoring Network
Date: August 23, 2012

PURPOSE

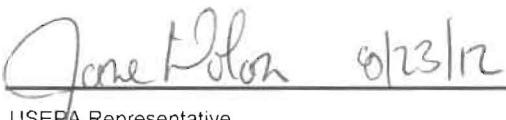
The purpose of this Project Note (PN) is to document agency concurrence with modifications to the L Range chemical monitoring well network. Modifications to the monitoring network were proposed in the Draft L Range Annual Interim Environmental Monitoring Report – May 2011 – April 2012, dated June 2012.

Chemical Monitoring Optimization

The draft report and the RCL resolved the sample frequency for perchlorate and explosives analysis. Table 4-1 and Figure 4-1 has been updated to identify the wells for which optimization was approved. Those wells for which optimization will occur are highlighted in the table.

CONCURRENCE

Concurrences with the recommendations presented in this project note are represented by the signatures below:



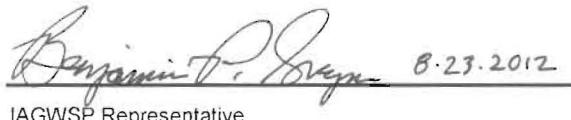
Jane Holon 8/23/12

USEPA Representative



Scott L. Gray 8/23/12

MassDEP Representative



Benjamin P. Gray 8.23.2012

IAGWSP Representative

Attachments:

Table 4-1 Approved Chemical Monitoring Schedule

Figure 4-1 Approved Chemical Monitoring Network

TABLES

Table 4-1
Approved L Range Monitoring Well Sampling Frequencies, and Parameters

Location	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Approved Explosives Sampling Frequency	Proposed Explosives Sampling Frequency	Approved Perchlorate Sampling Frequency	Proposed Perchlorate Sampling Frequency
90MW0003	12.90	7.90	A	N/A	A	N/A
90MW0005	-27.50	-32.50	A	A	A	N/A
90MW0007	-21.80	-26.80	A	A	A	N/A
90MW0013	71.40	61.40	A	N/A	A	N/A
90MW0019	-6.70	-11.70	N/A	N/A	A	A
90MW0021	-6.30	-11.30	A	N/A	N/A	N/A
90MW0031	-41.00	-45.90	A	A	N/A	N/A
90MW0034	37.10	32.10	A	A	N/A	N/A
90MW0038	41.90	36.90	N/A	N/A	A	N/A
90MW0071	-11.63	-16.63	N/A	N/A	A	N/A
90WT0013	71.10	61.10	A	A	A	A
90WT0019	81.00	60.00	A	A	A	A
MW-140M1	53.03	43.03	N/A	N/A	A	A
MW-153M1	-36.84	-46.84	A	A	N/A	N/A
MW-153M2	18.16	8.16	A	A	A	A
MW-236S	68.27	58.27	S	S	S	N/A
MW-238M2	38.17	28.17	S	S	S	S
MW-239M1	-94.20	-104.20	A	N/A	N/A	N/A
MW-239M2	-64.20	-74.20	A	N/A	N/A	N/A
MW-239M3	25.80	15.80	N/A	N/A	A	N/A
MW-241M1	62.83	52.83	N/A	N/A	A	A
MW-242M1	-76.12	-86.12	S	S	S	S
MW-242M2	-6.12	-16.12	N/A	N/A	A	A
MW-242M3	35.00	25.00	N/A	N/A	A	A
MW-246M1	-50.72	-60.72	A	A	A	N/A
MW-246M2	32.28	22.28	N/A	N/A	A	N/A
MW-288M1	-33.00	-43.00	A	A	A	A

Table 4-1
Approved L Range Monitoring Well Sampling Frequencies, and Parameters

Location	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Approved Explosives Sampling Frequency	Proposed Explosives Sampling Frequency	Approved Perchlorate Sampling Frequency	Proposed Perchlorate Sampling Frequency
MW-291M2	38.88	28.88	S	S	S	S
MW-325M1	-26.37	-36.37	A	A	N/A	N/A
MW-45M1	-25.96	-35.96	A	N/A	N/A	N/A
MW-529M1	57.20	47.20	S	S	S	S
MW-530S	66.13	56.13	S	S	S	S

Notes:

ft msl - feet above mean sea level

RDX - hexahydro-1,3,5-trinitro-1,3,5-tetraocine

N/A - Not Applicable

Explosives - EPA Method SW846/8330

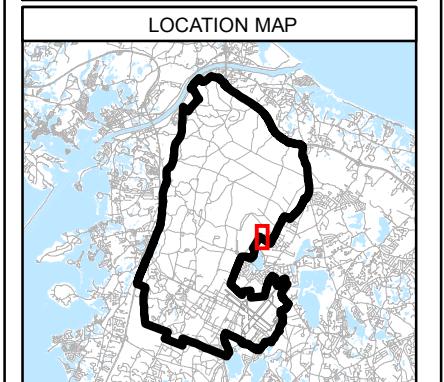
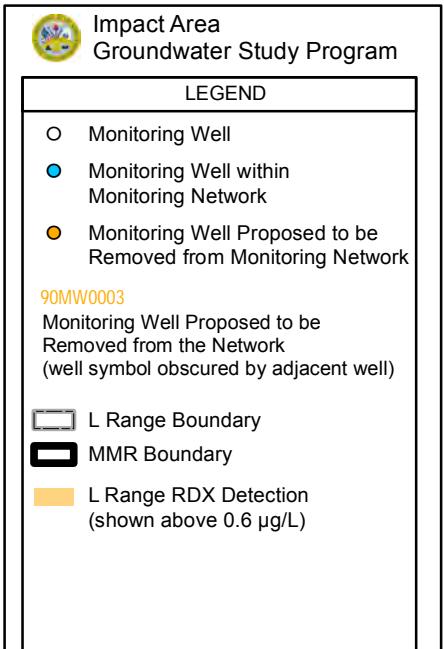
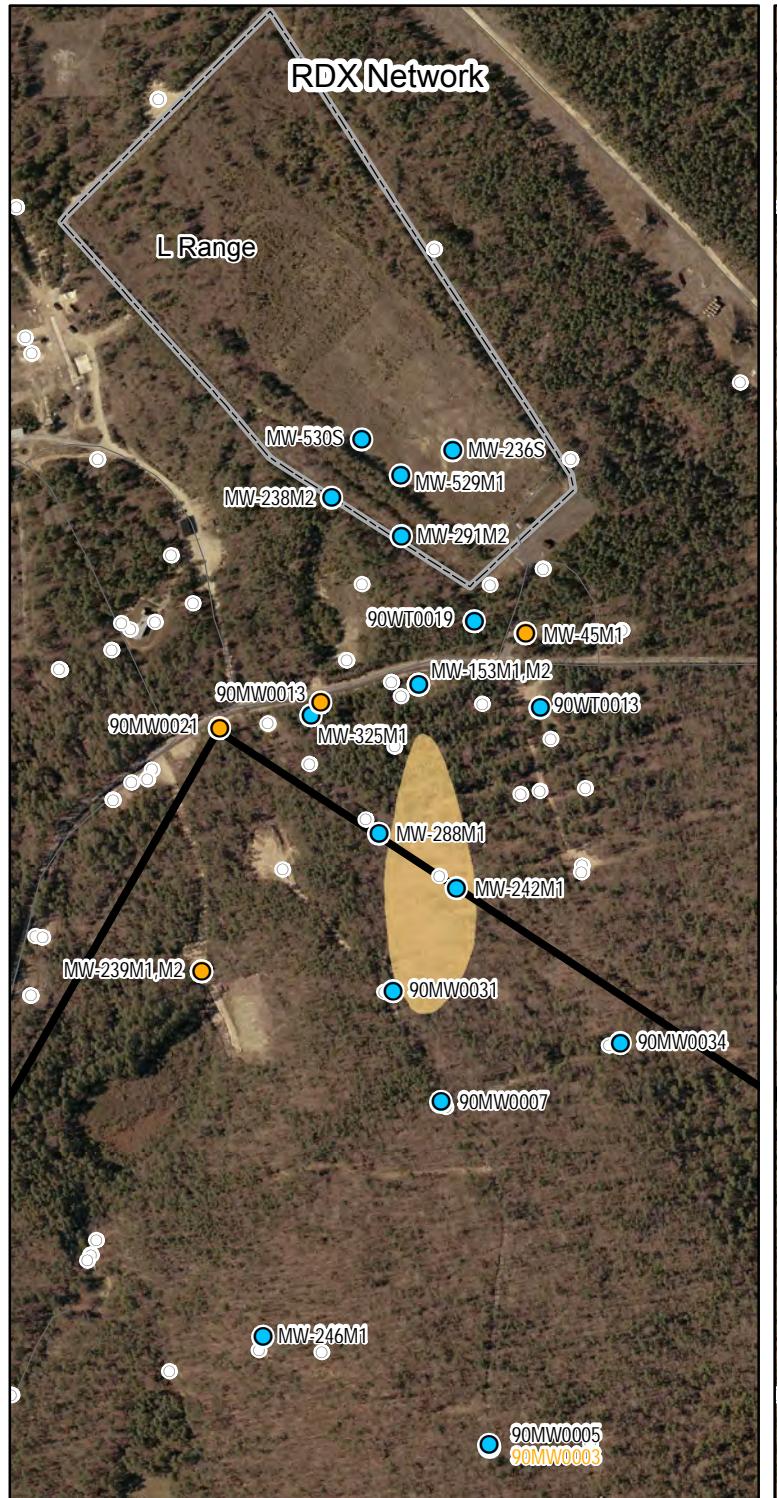
Perchlorate - EPA Method SW6850

A - Annual Monitoring

S - Semi-annual monitoring

Yellow highlights denote proposed changes to chemical monitoring program.

FIGURES



NOTES & SOURCES

Map Coordinate System: NAD83 UTM Zone 19N Meters
Basemap data from US Geological Survey 7 1/2 minute Topographic Maps: Source: MassGIS

TITLE
L Range Approved Chemical Monitoring Network

0 500
Feet

FIGURE
4-1

US Army Corps of Engineers
New England District

M1:MMR2012L-RangeFigures\Fig4-1_080312.pdf
M1:MMR2012L-Range\MXDs\Fig4-1_080312.mxd
August 3, 2012 DWN: MTW CHKD: MRK